SEPTEMBER 18, 1961

PAPER TRADE JOURNAL

World's Largest Disk Refiners Now Producing Groundwood From Chips

On-the-Spot Report as Hammermill Converts to Fine Papers at Oswego

What to Expect in Future Kraft Paper Machines and Manufacturing

How Multi-Service System Speeds Unloading of Dry Bulk Materials

Contents of the Week, pages 4-5

Paper sculpture by Giuseppe Baggi

Pulp from Gottesman means...

PUNCTUALITY!

Bleached and Unbleached Sulphite • Bleached Hardwood • Groundwood
Bleached, Semi-Bleached, and Unbleached Kraft

Established 1886

GOTTESMAN—CENTRAL NATIONAL ORGANIZATION

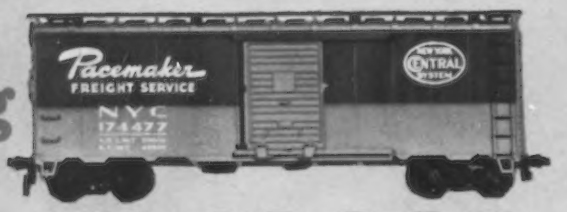
Gottesman & Company, Inc. • Central National Corporation
Central National Commercial Company, Inc.
100 Park Avenue, New York 17, N. Y.

Gottesman & Company Aktiebolag, Stockholm, Sweden • Central National-Gottesman Limited, London, England • Representatives in 55 Leading World Markets

Editorial Dept.
University Microfilms, Inc.
313 N. First St.
Ann Arbor, Mich.

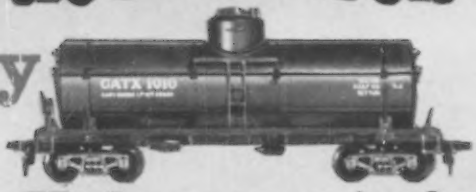
However you want your clays...

bag



bulk

slurry



...the Huber way is fastest

Approximately 10,000 carloads of clay per year are expedited by Huber's Traffic Department to all points of the compass. Our records and our customers' prove that barring nature's vagaries, *these shipments get to their destinations in record time* via the least expensive routing. You will find our Traffic Department's knowledge of shipping routes, rates, schedules and availability of box, tank and hopper cars to be without parallel in the industry.

All cars for Huber shipments are carefully inspected and cleaned, and all boxcars are paper lined prior to loading. Square, solid unit and palletized loads are rapidly handled and easily stored. Huber shipments arrive in top condition.

Ask for working samples of any of the clays in the complete Huber line.

HUBER

J.M. HUBER CORPORATION

630 Third Avenue, New York 17, N.Y.

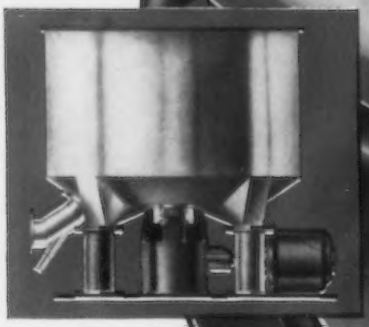
Mines & Plants: Huber, Ga.; Graniteville & Langley, S.C.

Announcing

THE NEW

DUALATOR

... cuts defibering time in half



Designed and developed by
The Pulp and Paper Research Centre, Inc.
. . . based on an entirely new concept in
defibering pulps . . . field-proved during a year
of continuous, full scale, mill operation

For the full story on the new dualator,
call or write

BOLTON EMERSON
TRADE MARK

JOHN W. BOLTON & SONS, INC.
THE EMERSON MANUFACTURING CO. DIVISION
LAWRENCE, MASSACHUSETTS

PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

Week of September 18, 1961
Vol. 145, No. 38

JOHN C. W. EVANS
Editor

PAUL D. VAN DERVEER
Associate Editor

HARRY L. DYER
Associate Editor

R. E. THUEMMES
Associate Editor

ERNEST F. BARKER
European Editor

L. HAMEL
Production Editor

WM. N. PERRY
Staff Artist

LOCKWOOD TRADE JOURNAL CO., INC.
49 West 45th Street, New York 36
Cable: Lockmin

GEORGE E. LOCKWOOD .....President and Treasurer
FREDERICK E. WINKLER .....Vice President
R. E. THUEMMES .....Secretary

Published by Lockwood Trade Journal Co., Inc., at 34 N Crystal St., East Stroudsburg, Pa. Second class postage paid at East Stroudsburg, Pa. Printed in U.S.A. Copyright 1961 by Lockwood Trade Journal Co., Inc. Paper established Feb. 17, 1899, combined with Paper Trade Journal Nov. 16, 1899. Paper established Sept. 21, 1910, combined with Paper Trade Journal February 19, 1926. All rights to above titles reserved.

FEATURED THIS WEEK

Hammermill Converts Oswego Board Mill to Fine Paper Operation

By modifying and modernizing recently acquired food board mill for production of fine papers this well known firm has greatly increased capacity at relatively low cost. An on-the-spot report—Paul D. Van Derveer **26**

Aim for Versatility in Design of Dry Bulk Unloading Systems

Many dry bulk materials called for in coating and additive operations may be unloaded economically by use of a multi-service system which reduces plant area requirements as well as unloading time—William G. Farin **30**

Reinforced Plastic Vessels Know No Limits in Size

Reinforced plastic construction produces large, homogeneous structures of great strength, high corrosion resistance, factory fabrication, with whole unit shipment. **33**

Trends in Kraft Paper Machines and Manufacturing Techniques

A point by point analysis of the machine shows where improvements have been made and where more research is still needed. The manufacture of multi-wall grades is specifically discussed—M. L. Boinest **34**

World's Largest Pulp Refiner—What? Why? and How?

A behind the scenes question and answer interview with Bauer Bros. Co. personnel. **39**

SUBSCRIPTIONS →

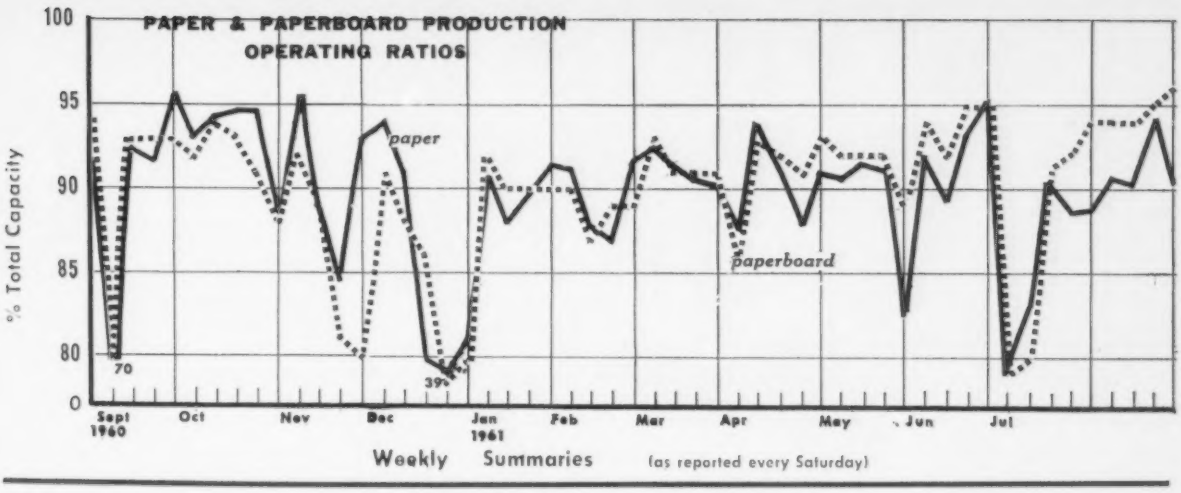
	1 yr.	2 yrs.	3 yrs.
Mills, Converters and Personnel U.S., Canada, Mexico	$5.00	$8.00	$10.00
Companies or persons not manufacturing or converting paper and pulp, U.S., Canada, Mexico	Per year: $7.50		
Latin American Countries	15.00	25.00	30.00
All Other Countries	20.00	30.00	40.00
United Kingdom Representative: J. B. Tratsart Ltd., 168A, Greenford Rd., Harrow, Middlesex, England	£7	£10/10	£14

Single copy price of current issue: North America 50c Foreign $1.00

PAPER TRADE JOURNAL—49 W. 45th St., N.Y. 36, N.Y.
Please enter a subscription with the mailing address as follows:

Name .....
Address .....
City ..... Zone .... State .....

If subscription is for an individual, please fill in:
Employer ..... City ..... State ...
Position ..... Employer's Business .....
Amount $ ..... ☐ Bill Me ☐ Bill Company ☐ Check Enclosed



NEWS OF THE WEEK

Offers to Buy Fox River Paper . . . Fox Paper Finishes Paper Machine Rebuild . . . G-P Buys Two Midwestern Converters . . . . . .

Paramount Packaging Moves Eastern Operations to Philadelphia . . . New Fiber Pipe Plant for Brown Co. . . . Consolidated Names G. M. for New Tenn. Plant . . . CCA Names New GM's at Southern Plants . . . Figg New GM For CCA in N. J. . . . . .

Strathmore Advances Four At Two Mills . . . Continental Can Names Fogarty Chief Executive . . . Conover Moves Up to SM for H&W Paper Sales . . . Gilbert Appointed To I-P Research Position . . . Sarver, Nekoosa-Edwards Papermaker, Retires . . . . . .

Trends *11*

News of the Industry *13*

News of Converters *14*

Paper People *16*

New Literature *41*

New Equipment & Supplies *47*

News of Suppliers *52*

Figures of the Week *52*

Prices of Fibers *62*

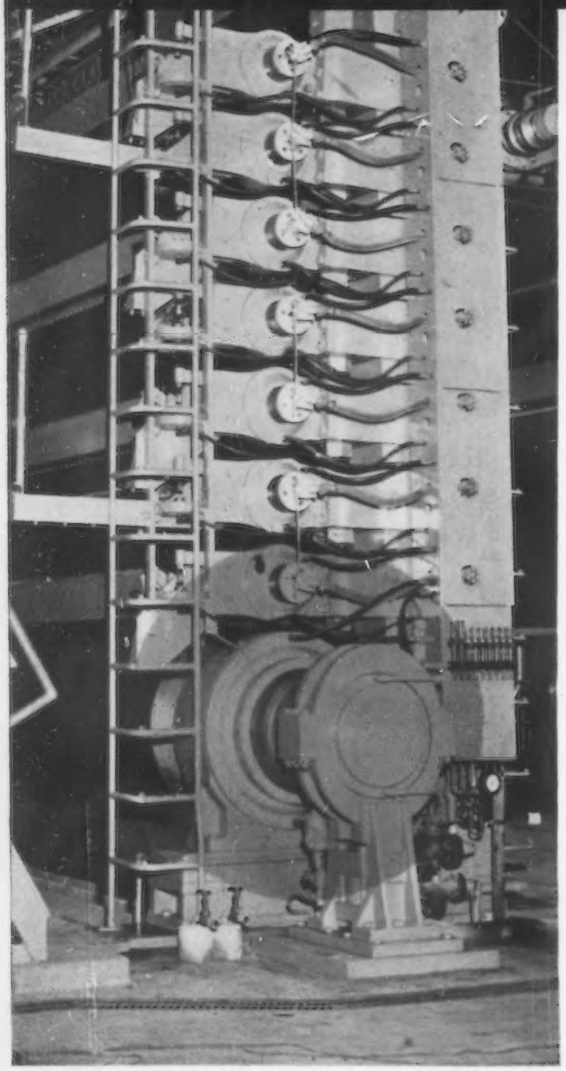
Classified Advertising *66*

Advertisers Index *70*

REMEMBER THESE DATES

Deinking Conference, Hotel Harris, Kalamazoo, Mich.	OCTOBER 5-6
Plastics Paper Conference, French Lick Sheraton Hotel, French Lick, Ind.	OCTOBER 9-11
Annual Meeting, Fibre Box Assn., Waldorf-Astoria Hotel, New York City, New York.	OCTOBER 10-11
Engineering Conference, Shoreham Hotel, Washington, D. C.	OCTOBER 15-19
Alkaline Pulping Conference, Rice Hotel, Houston, Texas	NOVEMBER 1-3

Here's How the **ACCRA-NIP*** *calender roll bending control reduces operating costs*

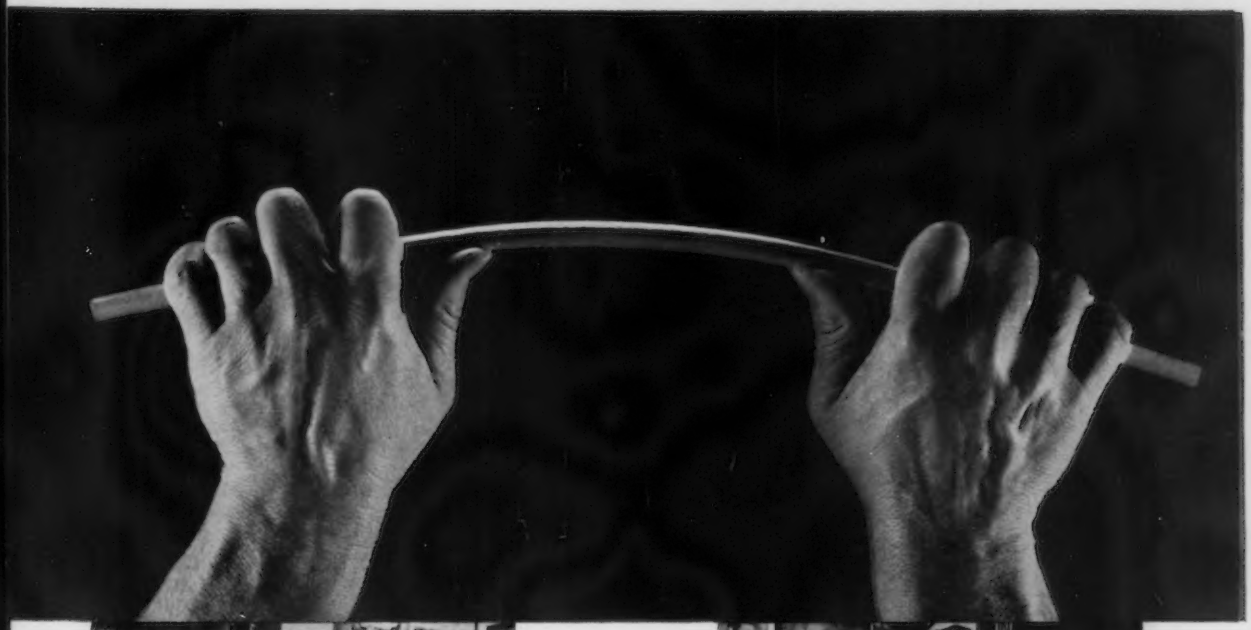


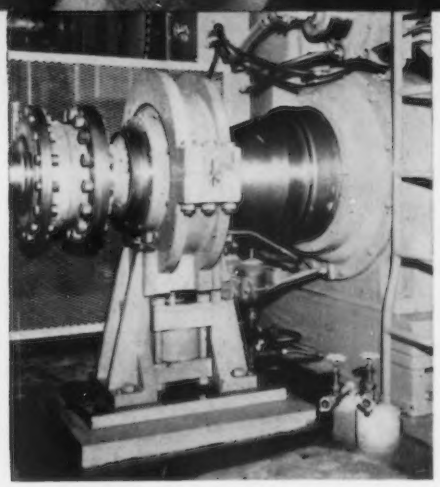
You Get a Uniform Sheet on Every Grade Change WITHOUT REGRINDING CROWNS

*This significant new Black-Clawson design concept can help reduce the profit squeeze in many a paper mill. The ingenious Accra-Nip bottom roll bending device varies the crown automatically to suit grade change operating conditions. Here are the cost-cutting advantages.

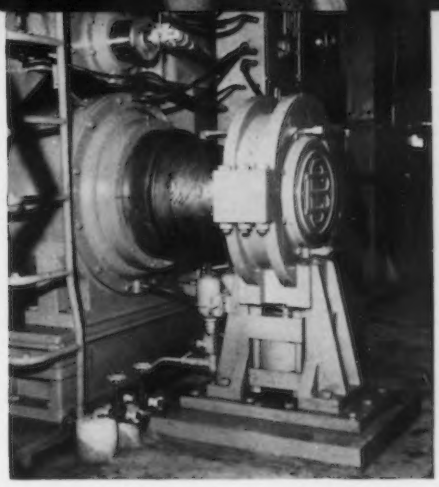
- No regrinding of roll crown when changing number of nips or loading.
- Only one bottom roll crown.
- Crown corrections made at console while calender is running.
- All corrections made at one place . . . the bottom nip.

* Trade Mark





Drive side load cylinder and bearing



Load cylinder and bearing . . . tending side

Here's How it Works — Bottom roll journals are extended beyond main roll bearings. A load bearing is mounted on each journal outside the main roll bearing and connected to floor mounted hydraulic cylinders. Individually controlled, they load the journals *up* or *down* thereby changing the amount of crown across the top of the roll. Get all the facts on this important new development and learn how Accra-Nip control can reduce your operating costs. Contact The Black-Clawson Company Paper Machine Division, Watertown, N. Y., today.

PAPER MACHINE DIVISION
Watertown, New York
ANOTHER ADVANCED ENGINEERING DESIGN

BLACK-CLAWSON

- 3,000 HP
- Two integrally mounted, self ventilating motors
- Exceptional accessibility for plate change and inspection
- Simple to operate — electrical hydraulic controls can be automated or remoted
- Water cooled base
- Positive pressure feed by twin screw feeder
- Provides savings in space and labor — one No. 480 can replace several lower HP units
- Commercially proved

The field proven No. 480 is the largest, most advanced refiner ever built. From its clean cut, functional exterior through to its pressure fed, precisely balanced, counter rotating 48" discs (weighing close to a ton each), this refiner reflects many outstanding engineering innovations.

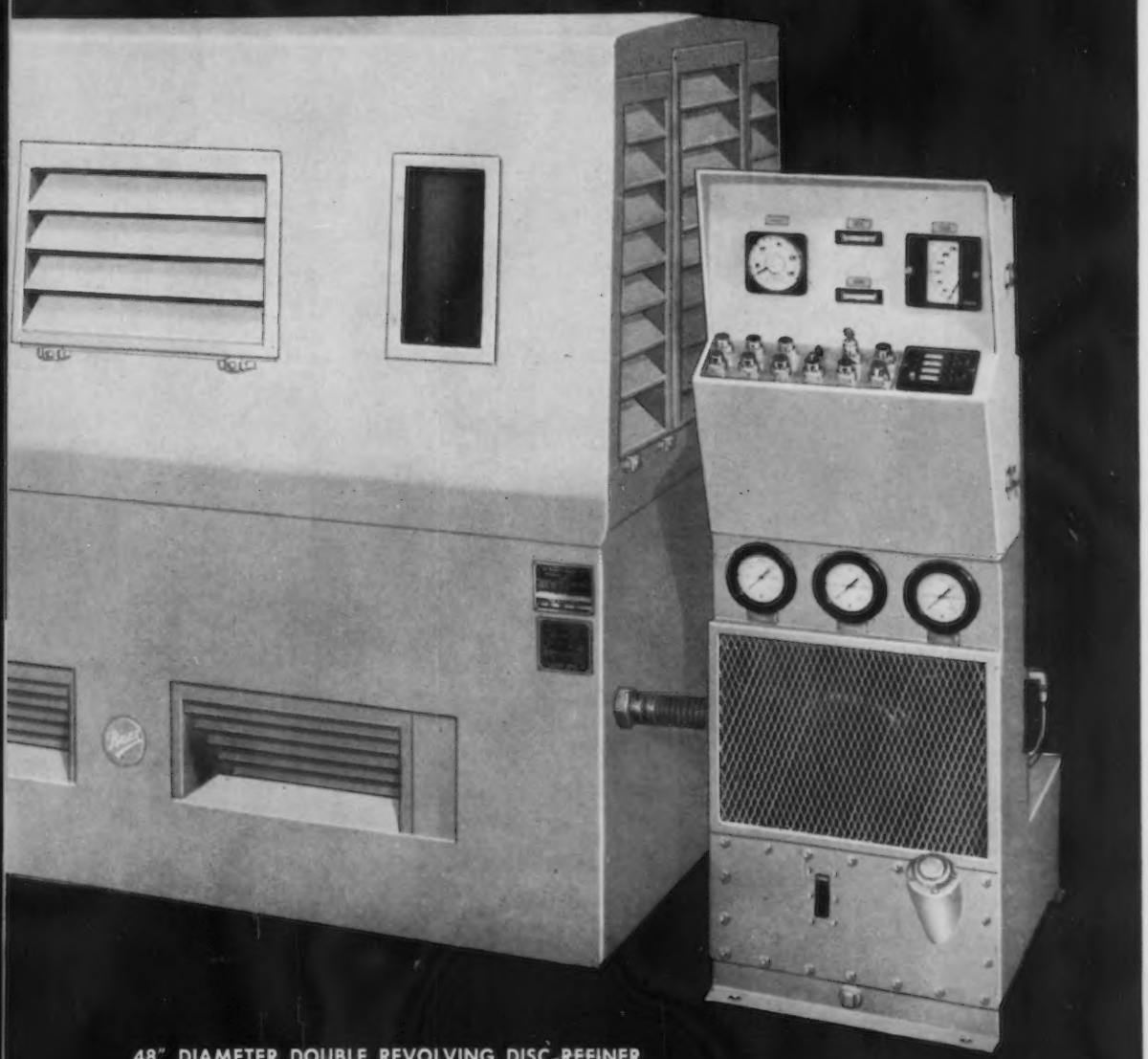
Operators tell you it is much easier to check or change plates on the 480 than on smaller machines of conventional design. Mill men appreciate its basic simplicity of design and control, because this spells reduced downtime and lower maintenance costs. Management notes the 480 saves space, upgrades quality and uniformity, can free personnel for other duties.

OTHER SIZES — The 3,000 HP No. 480 was developed for efficient production of groundwood from chips, high yield cold soda and high yield neutral sulphite stock. However, Bauer is also introducing a complete new series of refiners of the proven 480 I.M.* type, in sizes and power ratings to meet all production requirements. Get literature on this new series of double revolving disc refiners from your Bauer man, or write us direct.

THE BAUER BROS. CO./SPRINGFIELD, OHIO

"DISC REFINER HEADQUARTERS"

WORLD'S LARGEST PULP REFINER



48" DIAMETER DOUBLE REVOLVING DISC REFINER
DESIGNED SPECIFICALLY FOR STOCKS REQUIRING HIGH ENERGY INPUT

"Made OF Stainless Steel ...Made BY Jenkins"

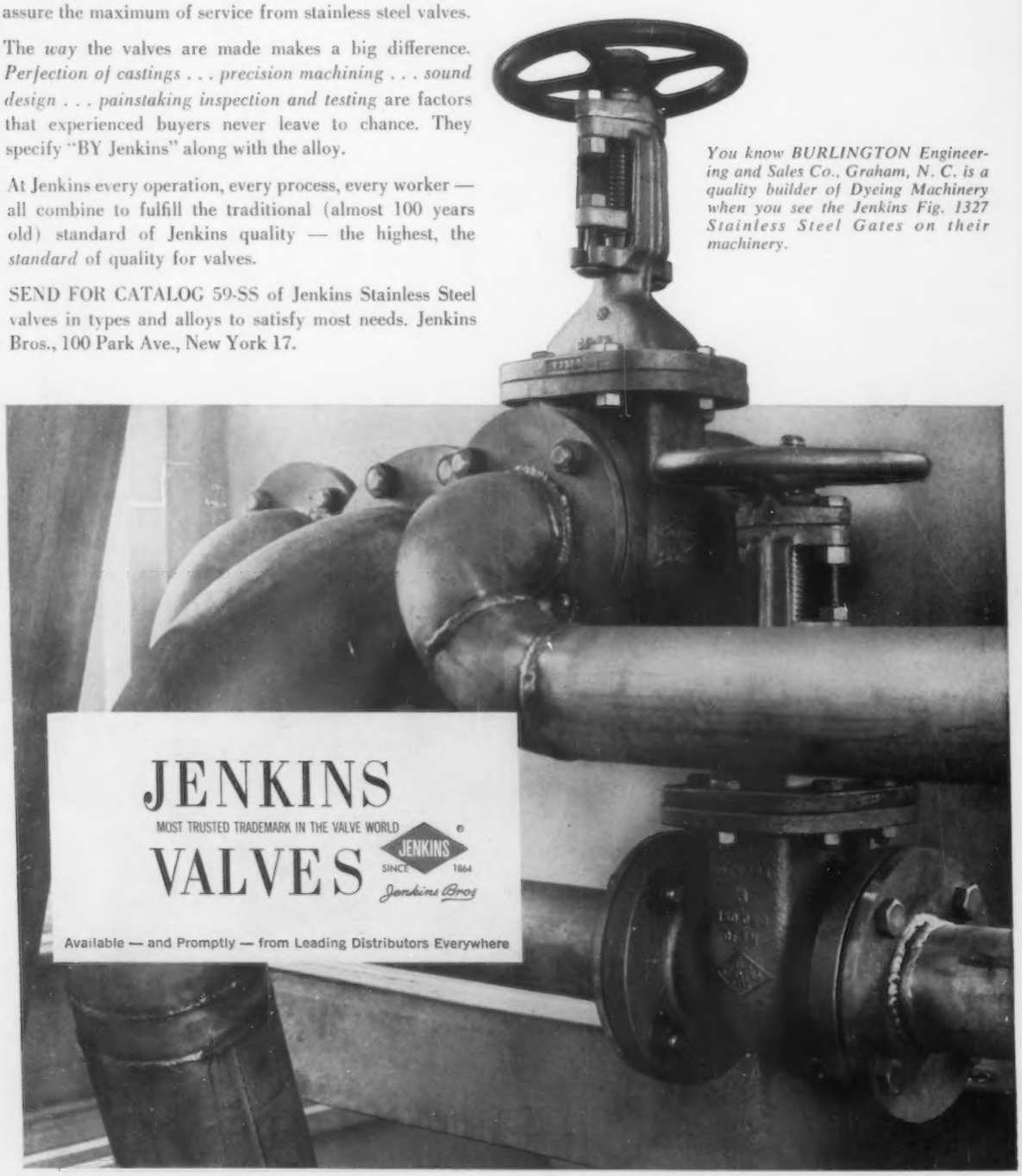
Write the COMPLETE SPEC for an extra-measure of service

Of course the metal, the alloy, is important when applications require stainless steel valves. But the specification for a suitable alloy is only half the specification needed to assure the maximum of service from stainless steel valves.

The *way* the valves are made makes a big difference. *Perfection of castings . . . precision machining . . . sound design . . . painstaking inspection and testing* are factors that experienced buyers never leave to chance. They specify "BY Jenkins" along with the alloy.

At Jenkins every operation, every process, every worker — all combine to fulfill the traditional (almost 100 years old) standard of Jenkins quality — the highest, the *standard* of quality for valves.

SEND FOR CATALOG 59-SS of Jenkins Stainless Steel valves in types and alloys to satisfy most needs. Jenkins Bros., 100 Park Ave., New York 17.



You know BURLINGTON Engineering and Sales Co., Graham, N. C. is a quality builder of Dyeing Machinery when you see the Jenkins Fig. 1327 Stainless Steel Gates on their machinery.

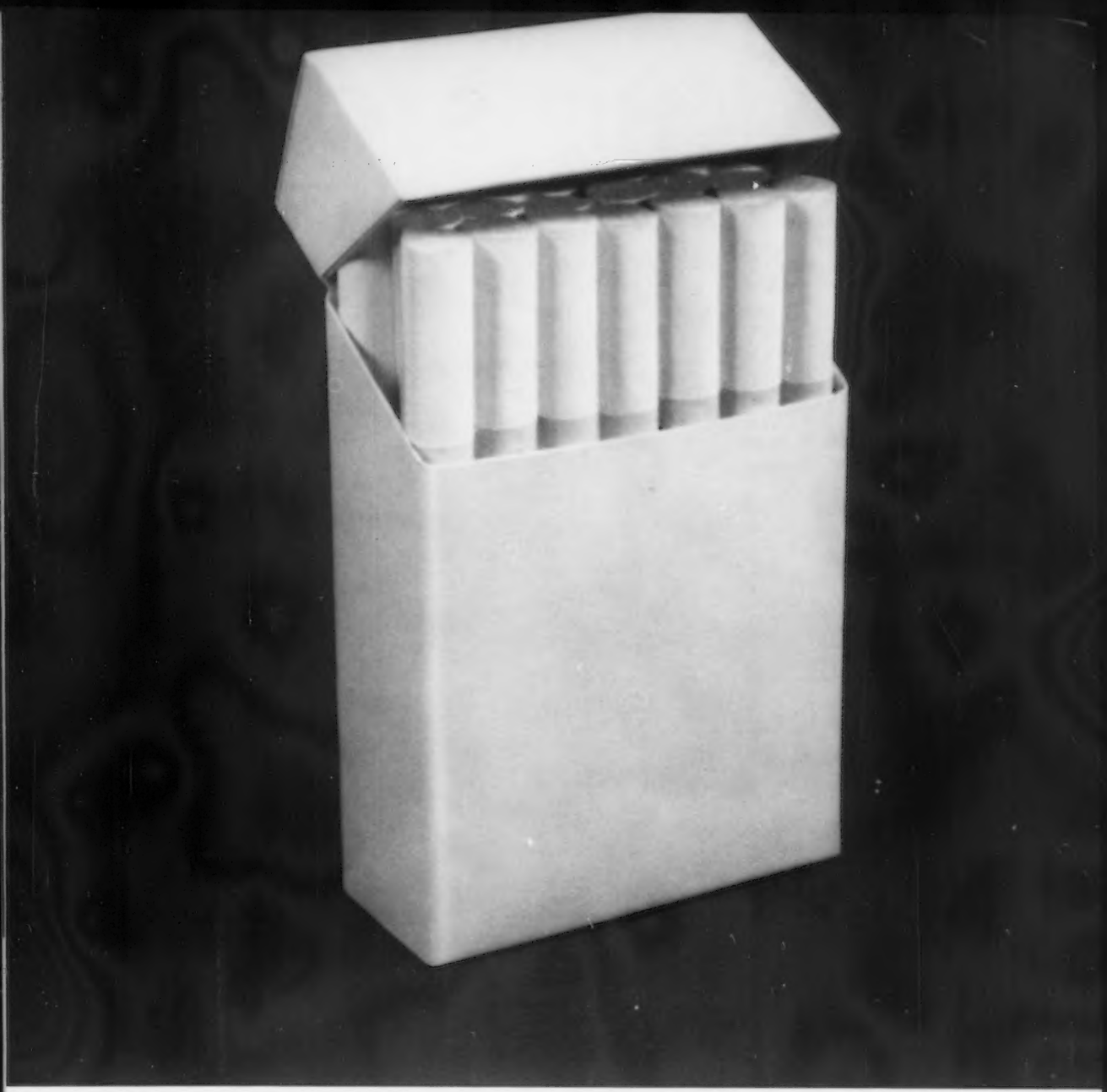
JENKINS

MOST TRUSTED TRADEMARK IN THE VALVE WORLD

VALVES

JENKINS SINCE 1864 Jenkins Bros

Available — and Promptly — from Leading Distributors Everywhere



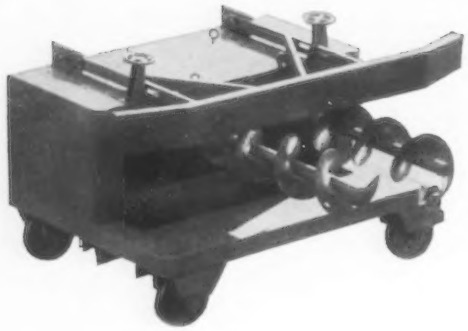
For the most complete line of laminating starches and dextrines to meet any operating conditions, investigate...

GLOBE®
starches and dextrines
FOXHEAD®
starches

WRITE OR PHONE *Corn Products for expert technical assistance... helpful data on these fine products for Paperboard Manufacturers:*
CORAGUM® · CORAGUM® FD · GLOBE® and FOXHEAD® starches · GLOBE® and GLOBE® LAM-O-DEX® dextrines

CORN PRODUCTS COMPANY INDUSTRIAL DIVISION · 10 East 56 Street, New York 22, N. Y.

SLAB CHIP STORAGE BECOMES POPULAR WITH IMPCO CHIP DISCHARGER



This discharger travels back and forth on rails in a tunnel under your chip pile. The action of its two counter-rotating screws withdraws the chips through a continuous opening in the side of the tunnel onto a traveling belt conveyor. A rapid and regulated flow of chips is fed directly to your digesters. No operator is required since the discharger is remote controlled from the digester floor. Feed capacities up to 100 cords per hour with 15 connected horsepower.

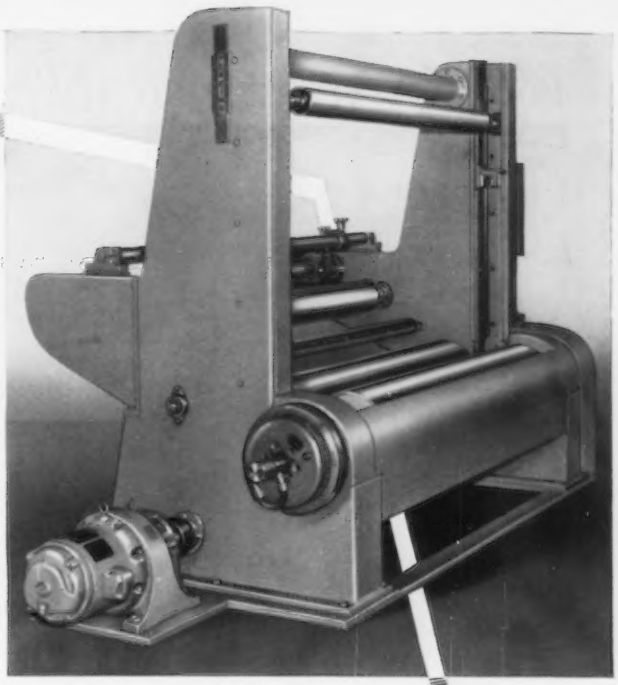
IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

IMPCO®

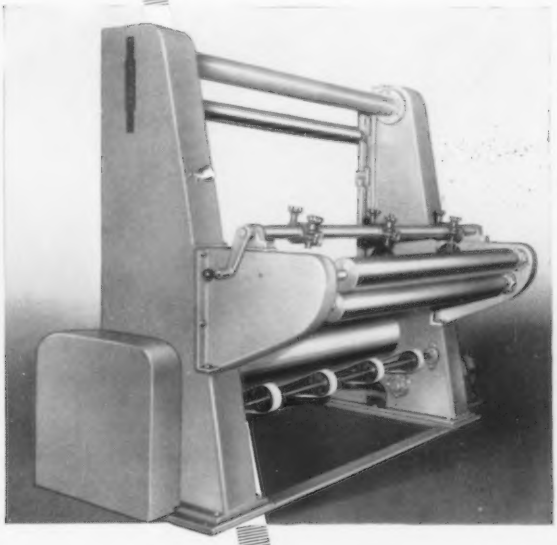
IN CANADA: SHERBROOKE MACHINERIES LIMITED, SHERBROOKE, QUEBEC

a new two-drum SLITTER REWINDER

for the paper converting industry



Designed for . . .



1. High speed production.
2. Winding and slitting of rolls up to 60" diameter and to 84" width.
3. Ease of operation:
   a. Automatic threading.
   b. Slitters and spreader readily adjustable.
   c. Rider rolls raised and lowered electrically with easily adjustable pressure control.
4. Single or dual motor drive furnished for tension control.

Heavy box frame construction with large rolls for minimum deflection.

A TRULY DEPENDABLE WINDER WITH MINIMUM DOWNTIME AND MAINTENANCE

THE WORLD'S LARGEST MANUFACTURER OF CALENDER ROLLS

B. F. PERKINS & SON, INC.

HOLYOKE • MASSACHUSETTS

What's News in Rubber...

NEW ENJAY BUTYL LATEX plays a vital part in the roofing system of Longway Planetarium, Flint, Michigan.

The benefits of Butyl are now available in stable emulsion form!

New Butyl Latex roofs the heavens

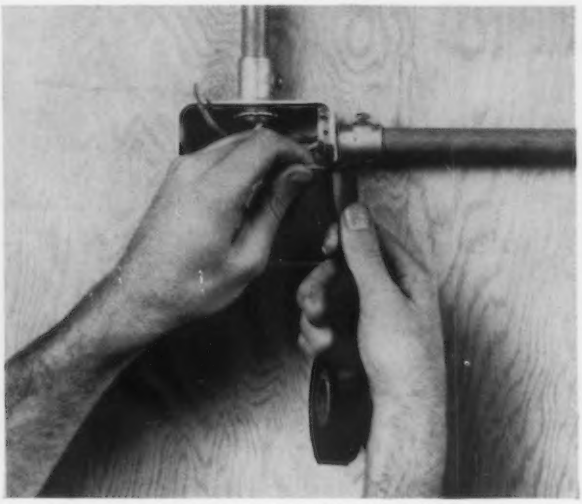
Now you can get the outstanding properties of Butyl rubber in convenient latex form. New Enjay Butyl Latex is a chemically stable emulsion of 55% solids in water. Properly compounded, it combines the ozone resistance, low-temperature flexibility and low permeability of the base polymer with a high degree of chemical, mechanical and freeze-thaw stability.

Enjay Butyl Latex is odorless, safe and easy to handle; compatible with a wide range of resin and elastomeric emulsions. It can be easily compounded with pigments, fillers, thickeners and tackifiers. Pseudoplastic in nature, it exhibits remarkably low viscosity at high solids levels. Shipped in insulated 8,000- and 10,000-gal. tank cars and 55-gal. steel open-head drums.

PAPER COATINGS containing Enjay Butyl Latex resist oil and water; improve printability, ink hold-out, brightness and gloss.

TEXTILE TREATING and proofing with Enjay Butyl Latex leaves the fabric surprisingly supple, with a good hand and drape.

TIRE-CORD DIPPING with Enjay Butyl Latex makes possible the all-Butyl tire, which gives the smoothest and safest ride today!



ADHESIVES formulated with Enjay Butyl Latex provide excellent resistance to moisture, aging, oxygen, ozone and chemicals.

ENJAY OFFERS EXPERT TECHNICAL ASSISTANCE

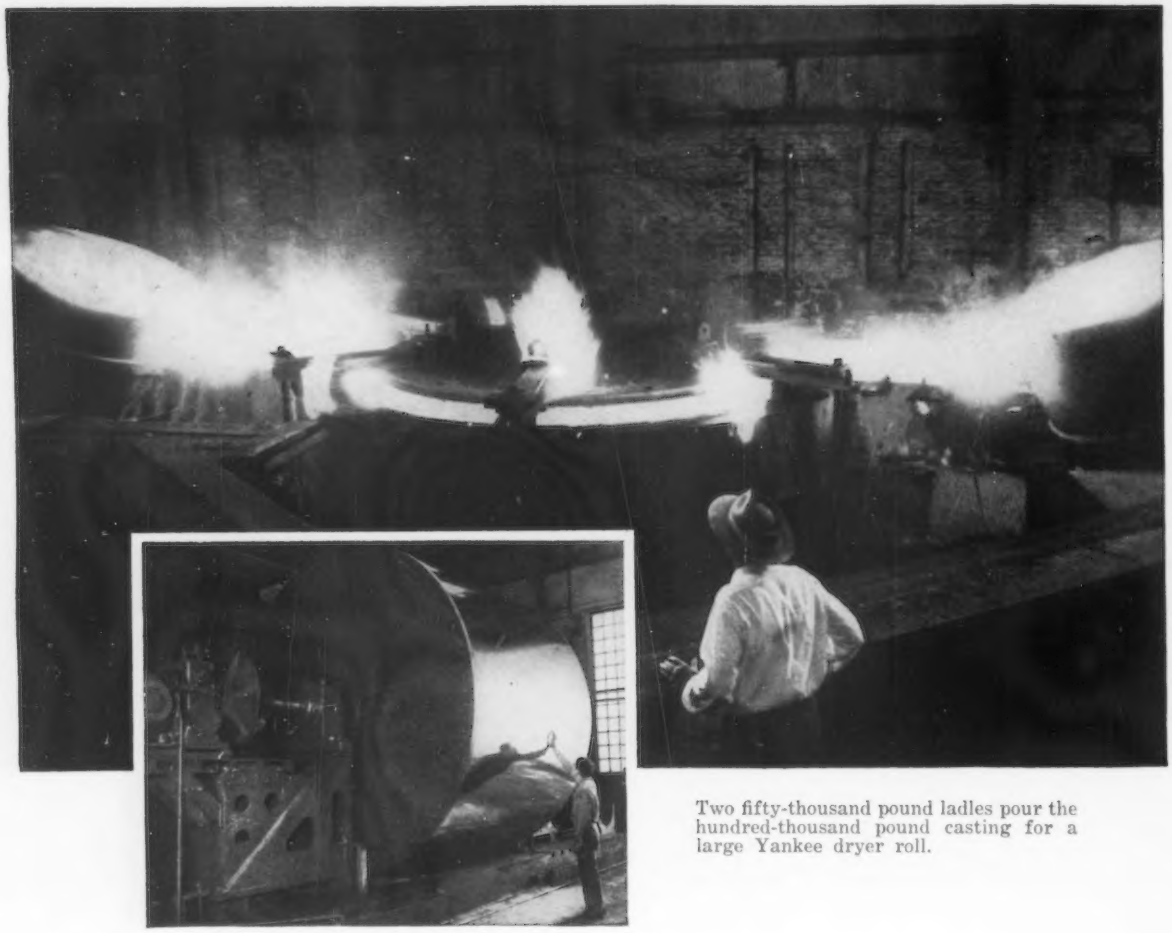
The Enjay Laboratories are always at your service to help you develop new or improved Butyl applications. Enjay technical literature is among the finest in the industry. For your free copy of Bulletin 012 on new Butyl Latex, write to Enjay, 15 West 51st Street, New York 19, New York.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY® BUTYL



Two fifty-thousand pound ladles pour the hundred-thousand pound casting for a large Yankee dryer roll.

The Newport News Yankee dryer roll takes a mirror-like finish.

Where

Yankee Dryer Rolls...and paper quality... get started right

Here in this foundry is where many a paper mill's *quality control* begins.

Here is where strength is born to provide steam-tight dryer rolls. And here, too, the fine grain of the metal is assured. That is important, as you know, since the finer the grain the higher the polish.

Desirable positions available at Newport News for Designers and Engineers in many categories. Address inquiries to Employment Manager.

Newport News has equipment for casting and machining paper mill rolls up to 12 ft. in diameter, and to 320 inches in length. Output is numbered in the hundreds. And deliveries are prompt. Your inquiries are invited.

NEWPORT NEWS
Shipbuilding and Dry Dock Company
Newport News, Virginia

Trends

August Production Leads Last Year

U. S. paper mill production ratio for August was 90.5 compared with 91.7 for August, 1960, with increases in the capacity base, this means actual output was slightly ahead. The paperboard mill operating ratio for August was 95 (last August 94) so that tonnage output was up several per cent.

Pulp Output Ahead 4% in July

Wood pulp production in July ran 4% above that month a year ago, with totals for the seven months 1% ahead. Pulp production by mills for their own use was 5% ahead of July 1960 while shipments for domestic use were down 10%. Exports were 5% ahead for July and 7% ahead for the period.

Raw Material Inventories at Ten Year Low

Stocks of raw materials in relation to consumption at the mills are at a ten year low. Excepting the west coast area, pulpwood inventories in the woodyard are 7% below last year. Stocks of market pulp at consuming mills are 10-12% below 1960. Mill inventories of waste paper are down 4% from last year. This low inventory condition cannot continue in the face of the further rise in business activity anticipated for the balance of the year.

Imports of Canadian Pulp Continue Rise

Canadian shipments of market pulp to the U.S. in July were 9% above July 1960. European pulp shipments to here in July were down 5% and for the year to date are off 32%.

Latest BDSA Report Presents Pleasant Picture

Our earlier predictions that 1961 paper and board output would be 3% above the record made last year, finds confirmation in the latest BDSA, U.S. Dept. of Commerce report which forecasts that this year will be one million tons ahead. Other interesting findings in this report, which will be summarized in next week's issue of Paper Trade Journal, include: As a group paperboard is doing substantially better than paper this year; Sanitary tissues and machine coated papers continue strong. It is noteworthy that these grades failed to react to the last three business recessions with new production records set every year since 1952; Construction paper and board have reversed their downward trend which was much more serious than that of the paper and board groups.

Kraft Paper Prices on the Rise

Price rises for various grades of kraft papers have been announced by a number of manufacturers. This follows recent increases for corrugated shipping containers.

"Brandon 'customizes' clipper seams"

A single, "all-purpose" type of clipper seam cannot operate at maximum efficiency on all paper machines. That's why Brandon makes a wide variety of clipper seam styles . . . and can recommend the specific type that is best for your operation.

Brandon's preconditioned, dimensionally stable dryer felts, permanently fitted with these customized clipper seams, are easily installed in just a fraction of the time needed for ordinary open end felts.

Call your Brandon Man for a demonstration of the many cost-saving advantages of Brandon Dryer Felts.

BRANDON SALES, INC.
BRANWOOD STATION, GREENVILLE, S. C.

BRANDON DRYER FELTS

PAPER TRADE JOURNAL

WEEK OF SEPTEMBER 18, 1961

Offers To Buy Fox River Paper Corp.

W. E. Buchanan, president of the Outagamie Corp., today announced that an offer had been made to purchase for cash the assets of the Fox River Paper Corp. of Appleton and to assume its liabilities. Stockholders of Fox River will act upon the offer at a meeting called for September 29, 1961.

The Outagamie Corporation is a holding company with substantial investments in companies located in the Fox River Valley. The Corporation is owned by stockholders most of whom live in this area.

All Fox River personnel would continue with the new Fox River Paper Corp. said Mr. Buchanan. The officers will be William Roberts, president and general manager; H. P. Dixson, vice president; H. O. Barney, secretary and treasurer; and Esther R. Small, assistant secretary.

The Telulah Mill, Fox River Paper's manufacturing division, has been completely rebuilt since 1947. A new finishing department and warehousing facility are planned adjacent to the manufacturing building which will complete the modernization program.

The Fox River Paper Mill, founded in 1883, is the second oldest paper manufacturer in Wis, antedated only by Kimberly-Clark's original mill at Neenah. It is the oldest manufacturer of fine writing papers in the Middle West.

Fox Paper Finishes Paper Machine Rebuild

The first stage of an extensive rebuild at Fox Paper Company's Lockland, Cinn. mill was recently completed with the successful start-up of Number 4 machine. The fourdrinier paper machine, trimming approximately 124 inches, produces kraft wrapping, converting and bag paper in the 30 to 90 lb. range for garment, millinery, and other uses. The machine produced 45 tons daily before the rebuild and an increase to 100 tons daily at 1200 f.p.m. is expected.

Black-Clawson's Paper Machine Division in Watertown, N. Y., engineered this phase of the rebuild, supplied new equipment and supervised its installation. New equipment included two 30 inch x 140 inch drilled faced air-loaded suction presses; basement-located, air motor operated felt stretchers, felt conditioner, felt rolls, two Uni-Flyte felt roll air guides and a motorized broke conveyor for the first press.

In the dryer section, 12 dryers were ground for improved paper contact and the bearings reworked. Three new 60 inch x 132 inch face, bored, bolted head dryers designed for 125 p.s.i. operating steam pressure were installed.

New drive equipment was put in, including totally enclosed Black-Clawson drive stands with air clutches for the couch, presses, predryers, Yankee dryer, after dryers, calender and reel. The couch is also equipped with an inching drive, with brake assemblies for the three dryer drives and a reverse unit for the calender.

G-P Buys Two Midwestern Converters

Agreement to purchase Imperial Bag & Paper Co., its subsidiary, Imperial Bag & Paper Sales Co., and the Fleetwood Paper Co., Chicago, Ill., has been reached stated Robert E. Flowerree, Jr., president of Georgia-Pacific Paper Co.

In commenting on the new acquisitions, Mr. Flowerree stated that the companies and their personnel fill a void in Georgia-Pacific's converting program. Georgia-Pacific recently purchased White Containers, Inc., Monticello, Iowa, and earlier this year Royal Container Co., San Francisco and Los Angeles, and Royal Fibre Corp., Santa Clara, Calif. The Royal facilities in the San Francisco area will be augmented by a new corrugated box plant, which the company has just announced it will build at Modesto, Calif. (See PAPER TRADE JOURNAL, Sept. 11, 1961). G-P's 600 t.p.d. kraft paper and board mill at Toledo, Ore., supplies the basic raw materials for these various converting operations. Plans have also been announced to construct an additional large kraft mill to pulp redwood residues at Samoa, Calif. (See PAPER TRADE JOURNAL, July 3, 1961).

Imperial Bag & Paper's plant manufactures a full line of standard grocers bags and sacks with sales primarily to midwestern and eastern markets, to food chains, paper merchants, wholesale grocers and other distributors. The sales management of the Imperial organizations and that of Fleetwood will continue under the direction of Robert Berkenfield and Joseph Krueger, according to A. G. Naudain, vice president in charge of sales for Georgia-Pacific. Raymond H. Finlay, Jr., recently appointed to the post of Midwest sales manager for Georgia-Pacific Paper Co., will be identified with these latest acquisitions in a sales capacity.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending September 2, 1961 at 90.3 per cent, compared with 91.4 per cent, revised, for the preceding week. The ratio was 90.1 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending September 2, 1961 at 96 per cent, compared with 95 per cent for the preceding week and 94 per cent for the corresponding week a year ago.

(Detailed Statistics on page 52)

NEWS OF CONVERTERS

Paramount Packaging Moves Eastern Operations to Philadelphia

Paramount Packaging Corp. has consolidated and centralized all eastern operations at their new general offices and flexible packaging plant, Chalfont, Pa., suburban Phila. A new explosion-proof, air conditioned structure houses the latest and most efficient equipment the industry has to offer. Specially designed printing equipment, including a 7-color Champlain rotogravure press, a battery of 6-color Kidder flexographic presses, polyethylene and pouch making equipment, high speed cellophane and paper bag machines are some of the production innovations. A completely staffed machine shop has been added.

The Research and Development Laboratory has been expanded and additional creative design and production talent enlisted to round out the new Paramount forward policy in flexible packaging leadership.

Modern materials handling, pigments dispersion, solvent pumping and underground storage facilities have been installed. Shipping and receiving docks are all under cover.

New Fiber Pipe Plant for Brown Co.?

The Bermico division of Brown Co., has taken an option on an industrial site in Lumberton, N. J. Until the rights under the option have been exercised no further details will be available, according to M. T. Murray, vice president and general manager of the Bermico division.

The site presumably will be the location for a plant for the production of fiber pipe and conduit and would be one of a number of similar plants the company has in various parts of the country. The most recent Bermico plant was opened this year in Birmingham, Ala.

Consolidated Names G.M. For New Tenn. Plant

The appointment of John H. Brooks of Memphis, Tenn. to general manager of Consolidated Paper Company's new Tennessee Valley Corrugated Division was announced by C. H. R. Johnson, president of the Monroe, Michigan firm. The Division will be housed in a new 40.000 square foot plant under construction in Pulaski, Tenn.

Mr. Brooks joins Consolidated from Container Corp. of America. Over a period of twelve years, he performed various sales and manufacturing assignments at the Memphis, Nashville and Chattanooga facilities of Container Corp. Temporary offices have been established at 115 South Public Square, Pulaski, Tennessee.

CCA Names New GM's At Southern Plants

Clifford L. Butler has been appointed manager of the Memphis shipping container plant, and Louis M. Crandall has been named general manager of the Fort Worth and Houston shipping container plants of Container Corp. of America.

Mr. Butler joined Container Corporation in 1956 as special assistant to the plant manager of the Anderson, Ind. plant. The following year he was transferred to Chattanooga as plant manager of the shipping container operation.

Mr. Crandall joined Container Corp. in 1946, and in 1950 he was appointed assistant to the vice president in the company's main office in Chicago. He began his managerial assignments in 1954 when he became assistant plant manager at the Chicago shipping container plant. In 1958 he was promoted to plant manager of the container plant in Los Angeles.

Figg New GM For CCA in N.J.

James A. Figg, Jr., has been appointed general manager of Container Corporation of America's shipping container plant in New Brunswick, N. J., it is announced by Edwin H. Bixby, general manager of the Eastern Corrugated and Solid Fibre Division. He assumed his new duties September 1.

In 1954, Mr. Figg joined The Mengel Company—a Container Corporation division since 1960—as a packaging engineer in the Virginia territory, and in 1957 was named sales manager of The Mengel New York office.

CCA Names Asst. SM At L.A. Plant

Richard F. Schmidt has been appointed assistant sales manager of the Los Angeles folding carton plant of Container Corporation of America.

Mr. Schmidt joined Container Corp. as a trainee in 1952 and since 1954 has been a salesman in the corporation's Fort Worth, Texas folding carton organization.

Berlin & Jones Names Connor Vice President

Francis A. Connor, formerly assistant vice president, has been appointed Vice President administration, of Berlin & Jones Co., N. Y.

Berlin & Jones Co., one of the oldest and largest envelope manufacturing companies in the country, was established in 1843 in the financial heart of the city. Since the turn of the century the company has had its main office and manufacturing plant in the Chelsea area of New York City.

Bemis Bag to Consolidate Office Functions

Bemis Bro. Bag Co. will consolidate its general office functions in Minneapolis, Minn., about July 1, 1962, Judson Bemis, president, announced.

At present the company has three general office locations; St. Louis, Boston, and Minneapolis. About 140 employes are involved.

Standard Packaging Corp. Plans To Sell Metallized Paper

A decision to offer metallized paper and paperboard on a commercial scale is announced by Standard Packaging Corp. The products are to be produced under a new process starting in late 1961. A plant site will be chosen soon.

Standard Packaging operates the Bradley-Gilbert divisions in Louisville, Ky. The metallized paper and board is expected to be used mainly for gift wrappers, labels, cigarette wraps, food board, oleomargarine wrappers, and folding cartons. The materials have been produced on a limited scale at existing Standard Packaging facilities since last year. The new production unit initially will have capacity for about $5,000,000 a year in metallized paper and board, with planned second phase construction designed to double this output. The firm also recently acquired Golden Fleece Tissue Mills.

New Firm Enters Paper-Plastics Field

As announced by its president and general manager, John E. Lynch, a new corporation called Presto Products, Inc. has begun full scale operation to convert polyethylene, paper and other allied products for retail marketing. This firm's mailing address is P. O. Box 976, Appleton, Wis. At the present time, the firm's primary product line consists of plastic food wrap for home consumption and dispenser napkins.

Eight Men Move Up At American Can

A series of eight new appointments in the manufacturing and purchasing departments of the Dixie Cup Division of American Can Company have been announced by C. L. Van Schaick, division general manager. The appointments, involving men with a combined Dixie Cup experience of 144 years, are as follows:

William R. Schaefer, formerly Lexington plant manager, moves to the headquarters plant in Easton to become assistant supervisor, Central Planning Department, where he will be responsible for planning, scheduling and distribution of all items in the growing home products line. Floyd Boyer, formerly Anaheim plant manager, becomes plant manager in Lexington.

John Mitchell, formerly assistant plant manager at Anaheim, was named plant manager there. Fred Beineman, formerly cost and purchasing supervisor in the Anaheim plant, becomes Anaheim assistant plant manager.

C. Roth, assistant plant manager at Darlington, was named assistant plant manager in Lexington. T. Crosby, formerly planning supervisor in the Darlington plant, was appointed assistant plant manager there.

R. Grimshaw, formerly assistant supervisor of the Central Planning Department at Easton, becomes Quality Control Laboratory manager at Easton. D. Dieffenderfer, formerly national quality control laboratory manager in Easton, becomes purchasing agent for paper and other major raw materials.

New Management For Cupples Envelope

Murray A. Cunitz has been elected president and director and Joseph Perrotti vice-president and director of S. Cupples Envelope Co., Inc., Brooklyn 1, N. Y.

The new management of this 63-year-old envelope manufacturer has undertaken a vigorous program of product improvement and diversification. New aggressive merchandising policies and plant modernization plans have been inaugurated.

Fibre Box Assn. Lines Up Annual Meeting

The annual meeting of Fibre Box Association will be held in New York City at the Waldorf-Astoria Hotel on October 10 and 11, 1961, according to an announcement made today by Albert W. Luhrs, executive manager.

Outstanding speakers on marketing and business conditions will include Fred Smith, John W. McKnight, of the Econometric Institute, and Leo Cherne, executive director of the Research Institute of America.

The President's Reception for members, guests, and wives will be held Tuesday evening, October 10.

Two Boise Cascade Men Named to New Posts

Gerald F. Butler and James B. Ruttner have now been named to key positions with Boise Cascade Corp. Container division by Fred P. Thompson Jr., general manager. Ruttner was named as general manager of the Burley, Idaho, container plant. Mr. Butler will assume Mr. Ruttner's old duties as sales manager of the company container plant at Wallula, Wash. Mr. Butler has been district manager in Seattle.

White & Wyckoff Advances Three

Three promotions at the White & Wyckoff division of Western Tablet & Stationery Corp. have been announced. Richard D. Strawbridge has been named treasurer; Fernand C. Dube, factory superintendent; and George F. O'Connell, assistant treasurer of the local company.

Meloy New Plant Manager

John S. Meloy has been named plant manager of Cornish Containers, Inc., Maumee, Ohio, it was announced.

New I-P Container Plant Slated for Piedmont Area of N.C.

A new corrugated shipping container plant, designed to serve the Piedmont area, will be constructed by International Paper Company's Container Division at Statesville, N. C.

This was announced by Arthur B. Damon, division general manager, who said engineering design has started for the 102,000-square-foot structure. Mr. Damon said the new installation will be equipped with latest machinery to manufacture corrugated shipping containers from kraft paperboard made at International Paper's Southern Kraft Division mills, one of which is located at Georgetown, S. C. Present target date for completion of the single-story structure is early Spring, 1962.

PAPER PEOPLE

Strathmore Advances Four At Two Mills

The Strathmore Paper Co. has announced four promotions affecting personnel at its Woronoco, West Springfield and Turner Falls mills in Mass.

William G. Vincent, a chemist in the research laboratory at West Springfield, has been promoted to assistant superintendent of the No. 2 mill in Woronoco. He succeeds Ludwig Ruzicka, who resigned recently.

Delbert C. Dezotell has been named to succeed Vernon A. Shattuck as foreman of the receiving and real estate departments at Woronoco. Mr. Shattuck retired recently.

Bernard J. Czanowski, who has been quality control supervisor at West Springfield, becomes night assistant superintendent of Strathmore's Turners Falls mill.

Mr. Czanowski succeeds Stanleigh I. Johnson, who is transferring to West Springfield as an assistant in the advertising and sales promotion department.

Thomas C. Fogarty

Continental Can Names Fogarty Chief Executive

Thomas C. Fogarty, president of Continental Can Co., was designated chief executive officer at a special meeting of Continental's board of directors on September 5, succeeding in that responsibility General Lucius D. Clay, who was appointed President Kennedy's personal representative to Berlin. General Clay continues as chairman of the board on leave of absence without compensation for the duration of his Berlin assignment.

Mr. Fogarty has been president of Continental since 1956. He was elected a vice president in 1946, executive vice president of the Metal Division in 1950, and has been a member of the board of directors since 1951. He joined the Continental organization in 1929.

Conover Moves Up to SM For H&W Paper Sales

Scott Paper Co. has promoted Robert A. Conover to the position of printing paper sales manager in its Hollingsworth & Whitney Sales Division.

Mr. Conover joined Scott in 1954 as a salesman in Philadelphia with its Industrial Packaged Products Division. Following managerial assignments in Houston and Cincinnati, he returned to the company's headquarters here as a product manager assigned to marketing problems within the Hollingsworth & Whitney Sales Division.

Gilbert Appointed To I-P Research Position

John W. Gilbert Jr., is the new assistant director of research and John A. Lyden is the new assistant to the vice president in charge of manufacturing for International Paper Co.

Mr. Gilbert, who joined the firm in 1936, presently is director of research for the company's Southern Kraft Division. In his new position, he will report to Stuart E. Kay, vice president and director of research.

Mr. Lyden has served the company in numerous executive positions, including managership of three southern mills. He will report in his new job to George T. Ward, recently appointed vice president in charge of manufacturing for pulp, paper and paperboard mills in the United States.

Arthur Sarver

Sarver, Nekoosa-Edwards Papermaker, Retires

Arthur Sarver, a papermaking veteran of nearly 50 years with Nekoosa-Edwards Paper Co., retired on the first of September. At the time of retirement, he was staff superintendent of the Nekoosa, Wis., paper mill. Mr. Sarver joined N-E in January, 1912. After progressing through the various crew positions on the paper machines, he was named a boss machine tender or tour supervisor in March, 1923. He became assistant superintendent in 1935 and superintendent of the Nekoosa paper mill in 1947. He served in that position until last year when he became eligible for retirement but remained one more year so he could help start up the new No. 2 paper machine this past winter.

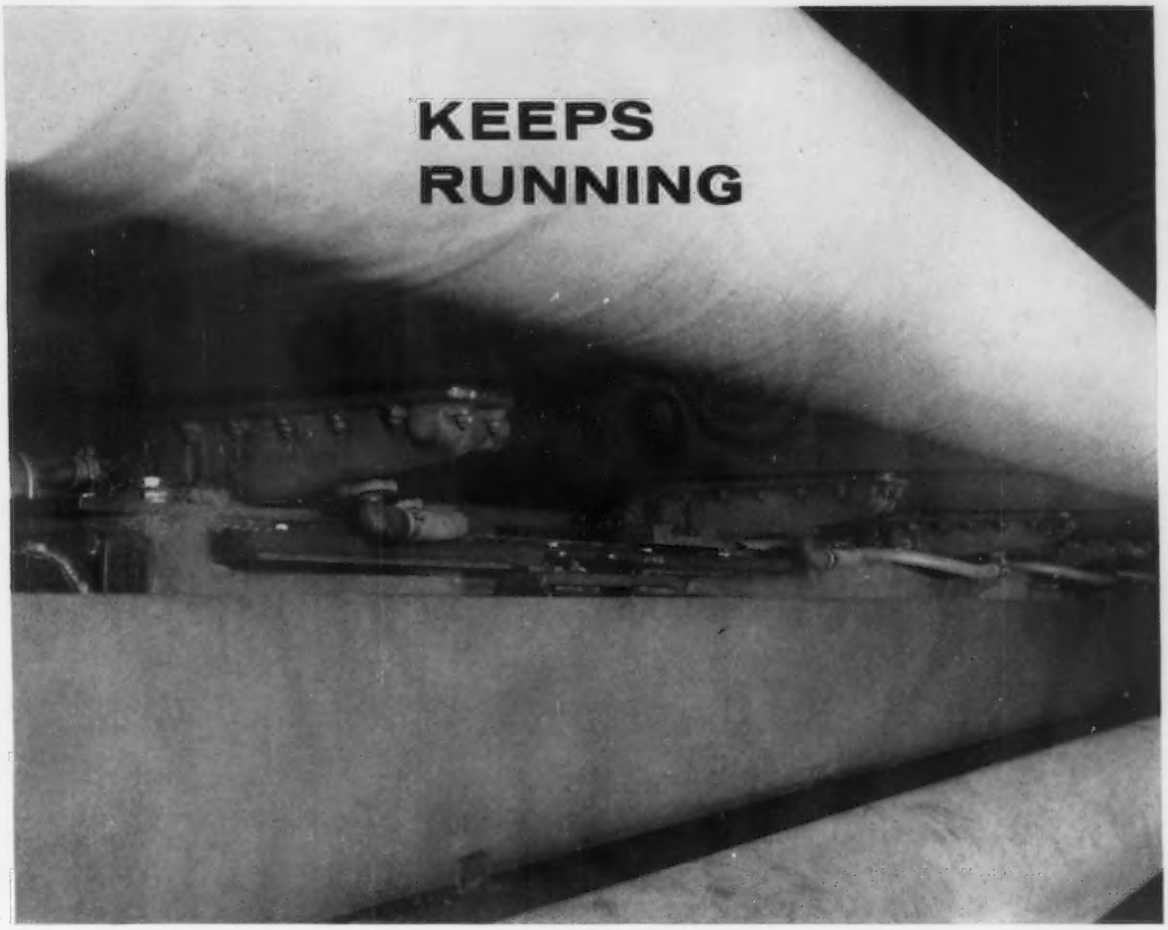
Scott Names Sales Rep. for Chicago Area

Scott Paper Company announced that Marion M. Wikle, Jr. has been named a sales representative in Chicago for its Hollingsworth & Whitney Sales Division.

Mr. Wikle was a paperboard salesman for the Container Corporation of America in Pennsylvania, New York and New Jersey prior to joining Scott. His sales career began in Philadelphia where he joined the Continental Can Co. in 1954 as a flexible packaging salesman.

St. Lawrence Tabs MacDonald as Gen. Supt.

H. S. MacDonald has been appointed general superintendent of the Three Rivers Mill, St. Lawrence Corp. Ltd. Mr. MacDonald has been paper mill superintendent since July 1945. Born and educated in Alexandria, Ont., he first joined the company in 1934.



Press felts keep clean and open right through the week when they're equipped with a

VICKERY FELT CONDITIONER

That goes for big, fast running felts, like the one pictured, and for felts on smaller, lower speed Fourdriniers, too. It applies to cylinder machine wet felts equally well.

Nowadays, midweek shutdowns to unclog felts are just too costly to tolerate. Don't let a single felt go unconditioned.

Let us make layouts and estimates.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND 4, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

Roger D. Ball

Leslie K. Martin

Edward E. Stephenson

Ball and Martin Promoted by Mead

Promotions of Roger D. Ball to assistant to the production manager and Leslie K. Martin to superintendent of No. 2 Paper Mill of The Mead Corporation's Chillicothe Division were confirmed by George H. Pringle, executive vice president.

Mr. Ball, formerly No. 2 Paper Mill superintendent, will be succeeded by Mr. Martin, who was general superintendent at Mead's Harriman, Tenn. division.

Mr. Ball joined Mead at Chillicothe in 1947 as an engineering trainee. He served in various management capacities in white paper production until 1955 when he was appointed superintendent of No. 2 Paper Mill.

Mr. Martin began his Mead career as an engineering trainee in 1951. He served at the Sylva, N. C. Division until 1956 when he was transferred to Harriman, Tenn. He was named general superintendent there in 1958, a position he has held until his current promotion.

Archie C. McCougan

MB&PR Up Two On Pulp & Paper Sales

Archie C. McCougan has been appointed general manager, Pulp and Paper Sales for MacMillan, Bloedel and Powell River Limited. The new appointment was announced by R. M. Shaw, president of the company. His appointment will become effective September 15th. Mr. McGougan was a former executive of the MacMillan and Bloedel sales staff, leaving his post as manager of the Pulp Sales Division to accept a position with Abitibi Sales Co. two years ago.

W. M. Marler's appointment as manager, Pulp Sales Division was also announced.

CWP&P Moves Nelson Up To New Post

Harold Nelson has been appointed manager of coated paper scheduling at Consolidated Water Power & Paper Co., it was announced by W. J. Foote, manager, Book Paper Mills.

Mr. Nelson joined the company in 1930 and has worked in the company's Order & Billing Department since 1935. He has been serving as assistant supervisor of that department.

Three appointments at the Wisconsin Rapids Division were announced by L. W. Murtfeldt, division manager.

Richard Hahn has been named pipe fitter foreman, succeeding the late Donald Dittburner. He joined the company in 1942 and has been assistant foreman since 1957.

Charles W. Panter, Jr. succeeds Mr. Hahn as assistant foreman. He began his employment in 1939 and has been in the Pipe Fitter Department since 1945. Mr. Murtfeldt also announced the appointment of Glenn R. Prusynski as assistant control & analysis foreman. He succeeds Ben Erickson who recently joined the company's sales-service department. Prusynski attended the University of Arizona and has been employed in the division's technical department.

Stephenson Promoted By KVP-Sutherland

Edward E. Stephenson has been named Production Services manager for the Sutherland Division of KVP Sutherland Paper Co.

Mr. Stephenson joined the Sutherland Division in 1951 as a chemical engineer. He held the postion of staff technician in charge of Paper Testing and Paper Specifications and since 1956 has been director of the Quality Department.

Consolidated Paper Corp. Appoints Four

The following appointments to the Research and Development staff of Consolidated Paper Corporation Limited, Grand'Mere, Quebec, have been announced by Dr. A. H. Vrom, director of Research:

F. E. Murray, formerly with the British Columbia Research Council in Vancouver, has been appointed research coordinator.

O. J. Walker, formerly chief development engineer and later technical director of Anglo-Canadian Pulp & Paper Mills Ltd., has been appointed development coordinator.

W. T. Houghton, a recent graduate in chemical engineering from the University of Delaware, has been appointed research engineer in the By-Products Group.

J. L. Barlow, a recent graduate from the University of Toronto, has been appointed research engineer in the Engineering-Physics Section.

Harrison Becomes Executive Asst. at MB&PR

E. L. Harrison has been appointed executive assistant to Hon. J. V. Clyne, chairman, MacMillan, Bloedel & Powell River Co. Ltd., Vancouver, B. C.

Brighter whites with wet strength resins... acid stable Leucophor C is the first all-purpose optical brightener to produce maximum brightness in the beater and in the tub. Excellent stability over the entire pH range eliminates the need for buffers and enables you to re-use white water containing alum and free acid. With wet-strength resins, there's no precipitation, no yellowing of the paper. See the reverse side of this ad for additional information, and call Sandoz for a demonstration at your earliest convenience. Sandoz, Inc., 61-63 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700. District Offices: Charlotte; Cincinnati; Fair Lawn, N. J.; Hudson, Mass.; Los Angeles; Philadelphia.

SANDOZ

THINKS AHEAD WITH PAPER

SANDOZ

FOR TOP BRIGHTNESS WITH TOP SAVINGS

apply Sandoz Leucophor C—

- in the beater • in the size press
- in spraying or dipping • in coating

In hard-sized papers and paper containing wet-strength resins, Leucophor C fully satisfies the need for high acid stability. In clay-casein coatings and size press solutions it has outstanding alkali stability. And with given amounts of TSP or soda ash, you can add large amounts of Leucophor C for added brightness without yellowing.

Designed especially for the paper industry, Leucophor C is another example of how Sandoz research and complete service to paper pays off in outstanding performance. Call Sandoz and see—

LEUCOPHOR C:
all-purpose optical brightener

- Widest pH range (1-12)
- Excellent stability with acids, alkali, salts, and hard water
- No precipitation, yellowing, or loss of brightness
- Permits sizing at low pH for maximum retention of fines and better uniformity
- Compatible with anionic and nonionic compounds, fillers and shading pigments, direct and acid dyes
- Stable in storage at temperatures between freezing and 110° F.

Sandoz, Inc., 61-63 Van Dam Street, New York 13, N.Y. Algonquin 5-1700
District Offices: Charlotte; Cincinnati; Fair Lawn, N.J.; Hudson, Mass.; Los Angeles; Philadelphia.

SANDOZ

THINKS AHEAD WITH PAPER

SANDOZ

Everett C. Reed, executive of Albany Felt Company, holds synthetic fibers against a background of varied styles of chemically treated, synthetic-content, paper machine felts.

How much is enough?

Knowing the *right* proportion of synthetic fiber to wool, for example, cannot be guesswork.

When you ask us to design and manufacture a felt, these questions must be answered and answered correctly: What do you want from a felt? What performance do you seek?

As a result of long experience in selecting and blending synthetics and wools, and after thorough study of results with thousands of synthetic-content felts in actual performances . . . Albany Felt, the pioneer in developing synthetic-content felts (we hold the original patent) can assure you of the highest skill in designing and building felts to fill your specific needs.

This means improved felt performance on your machine.

Today over 60% of our felts contain synthetic fibers . . . and we are the world's largest manufacturer of paper machine felts.

ALBANY FELT COMPANY
ALBANY, N.Y.
AF
Dedicated to Paper Industry Progress

N. Monmouth, Maine Hoosick Falls, N. Y. St. Stephen, S. C.
Cowansville, Quebec Cuautitlan, Mexico

TALK SYNTHETICS WITH YOUR ALBANY FELT SALES ENGINEER ▶

The *facts* about SYNTHETIC-CONTENT *felts*

The most satisfactory synthetic fibers used in felts are Nylon and Dacron. The proper synthetic, carefully blended in the right amounts with the right wools and in the proper felt design, results in a felt that gives longer life and improved performance.

Albany Felt Company's long experience in synthetic-content felt manufacture has proved these facts:

- The percentage of synthetic fiber used in a specific type of felt varies with the individual paper or paperboard application involved. (Generally, the proportion is from 10% to 45%.)
- The amount of synthetic fiber recommended rises in proportion to the extent of punishment which the felt must endure.
- The percentage of synthetic fiber in a felt is not the sole answer to better-performing felts—the careful selection and blending of synthetics and wool, plus the right felt design are also most important.
- The careful and knowing selection of the proper chemical treatment, in conjunction with synthetics, often assures longer felt life, improved finish and performance.

MOST IMPORTANT FACT OF ALL . . .

When the "rights" are added together—the *right* design, the *right* fibers, and the *right* blending—the felt will be *right* for your requirements.

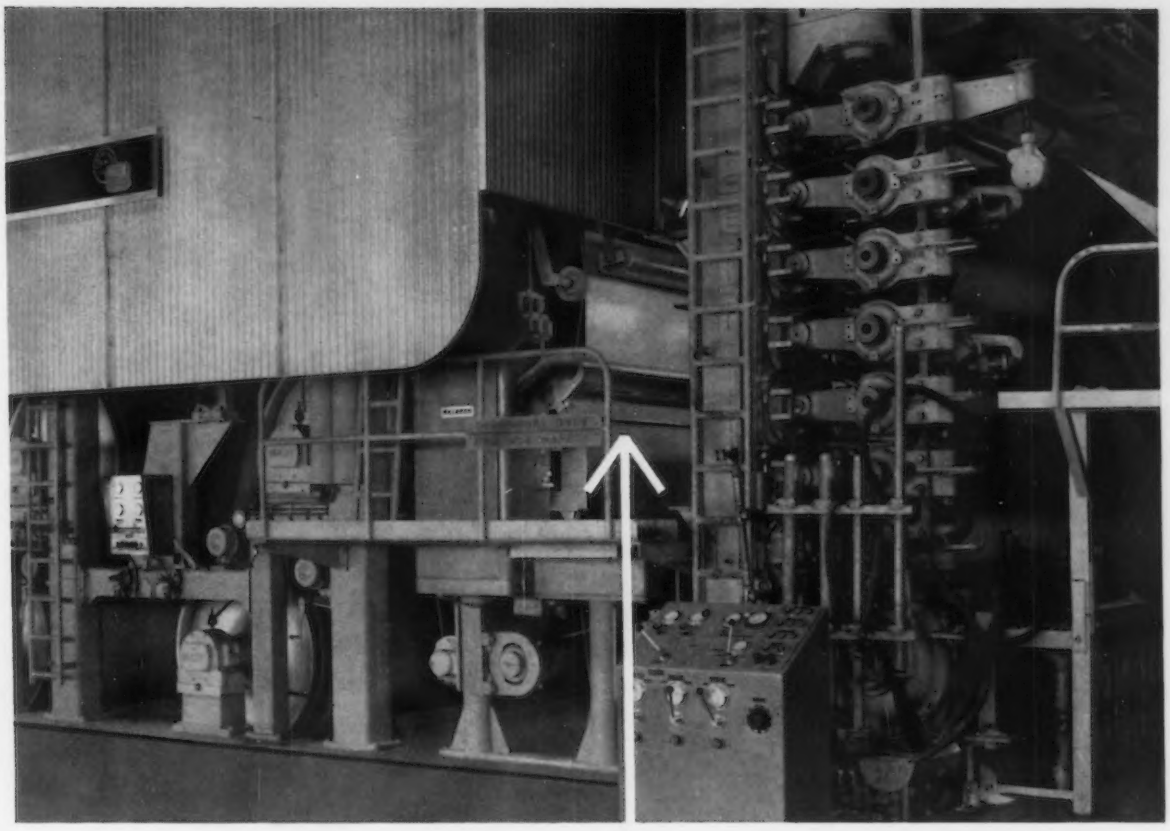
TALK SYNTHETICS WITH YOUR ALBANY FELT SALES ENGINEER

ALBANY FELT COMPANY
ALBANY, N.Y.

AF

Dedicated to Paper Industry Progress

N. Monmouth, Maine Hoosick Falls, N. Y. St. Stephen, S. C.
Cowansville, Quebec Cuautitlan, Mexico



226″ Microjet® coater | production proven

On the paper machine shown above the Waldron Microjet coater provides an accurately metered film of coating for printability or functional properties on paper and board surfaces at high speed. The proven Microjet air doctor applies coatings on smooth pre-coated or rough uncoated surfaces with a higher efficiency than any other coating method and gives uniform and economic control of coating weight over a wide range. The coater is available for on-machine or converting operations, either as a unit or as a complete installation with all associated mechanical and Ross drying equipment.

The experience of more than a hundred machines in operation provides Microjet users with the best production-minded machine in the industry. For additional information write for bulletin 1010. Complete laboratory facilities in our plant for coating and drying commercial equivalent products are available to you.

Write for new convenient "Coating Weight Calculator". No obligation.

WALDRON

technical competence in web process machinery

WALDRON-HARTIG, Box 791, New Brunswick, N. J./a division of Midland-Ross Corporation

Which coating suits you best? There's

a DOW COATING to fit almost any paper need!

Among the many fine Dow products, you'll find paper and boxboard coatings for almost every application. Here is a partial list of the Dow products which serve the pulp and paper industry:

NEW DOW LATEX 630 . . . Coatings made from this styrene-butadiene latex offer demonstrably superior pick resistance, excellent mechanical stability and starch compatibility. Dow Latex 630 will produce a smoother, more uniform paper surface, providing maximum printability. Both type and half-tone reproductions will be sharp and clear, with a minimum of production problems.

DOW SARAN RESINS . . . For highly protective coatings offering reduced moisture vapor transmission and permeability to gases, and improved grease and oil resistance, select Dow saran resins. They can upgrade packaging films, paper and paperboard for use in many new applications.

SARAN LATEX F-122 . . . This aqueous solution of saran dries to form a continuous, tough, glossy film with high resistance to chemicals and water. Use it for decorative coatings and book bindings.

DOW POLYETHYLENE . . . A wide range of resins is available for extrusion coating and lamination of paper, paperboard and flexible packaging webs. They offer excellent gloss and heat sealing properties, as well as good water vapor, water and chemical resistance. Flexibility is maintained at low temperatures.

ETHOCEL® . . . This organo-soluble cellulose plastic is compatible with many waxes, resins and plasticizers. Coatings made of Ethocel are noted for heat stability and for solubility in low cost solvents.

To solve your coatings problems, call on Dow. You'll find not only a wide selection of products, but experienced technical assistance in their use. For information, write us in Midland, Coatings Sales Department 1932DP9-18.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

HERE IT IS!

Your Invitation To...

"A practical monograph covering design and operation of fourdrinier paper machines from stuff box to couch"

Written with the young operating engineers and technicians in mind, this book has great value to experienced practical papermakers as well. Five vital chapters cover . . . Stock and White Water Systems . . . Headboxes and Slices . . . The Auxiliary Components . . . Troubleshooting . . . Curing Paper Defects at the Wet End . . . It will be to your advantage to accept our invitation immediately. We have already had an unusual number of requests for the book even before publication was announced.

Price, only . . . . . $2.50 per copy

R.S.V.P. NOW

"On Fourdrinier Wet Ends"

LOCKWOOD TRADE JOURNAL CO., Inc.
49 West 45th Street, New York 36, N. Y.

Please send me ..... copies of A MONOGRAPH ON FOURDRINIER MACHINE WET ENDS at $2.50 each, postage paid.

☐ Bill Company ☐ Check Enclosed

Name .....

Street ..... *City and State* .....

FACTS, FIGURES AND IDEAS DESIGNED TO Mount Hope SAVE YOU TIME AND MONEY

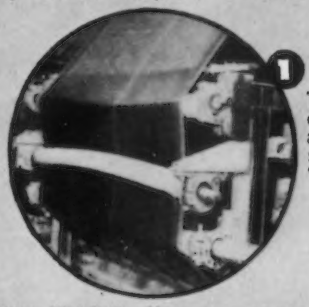
web control NEWS

Volume 1, Number 2

INCREASE FELT LIFE 10-20% OR MORE

One of our great, unrealized ambitions in life is to have every Mill Man who uses Mount Hope Rolls: **A** in paper finishing; also use them **B** on felts and vice versa. For some strange unfathomable reason, many of our customers fall into one category or the other.

Since felt cost and installation represent a considerable portion of the cost of product, here are a few places where Mount Hope Rolls have successfully increased felt performance and life—in a few cases as much as 50%.



1 ON CYLINDER MACHINES

Top Finishing Felt Preserves felt elasticity and nap. Keeps water drainage even. Provides a better printing surface that minimizes "checking," "picking," and "flowering."

Bottom Wet Felt Keeps weave open, seam straight. Provides even water drainage across felt width—eliminates wet streaks. Restores felt to desired operating width each revolution.

Press Felts Keeps felt open and seam straight entering nip. Provides better finish with less felt impression; more uniform drying with less curl.

2 ON FOURDRINIERS

1st Press Keeps the felt weave open and the seam straight. Provides even removal of water—even drying. Eliminates wet streaks, cockles, wrinkles, and "spotty" Mullen Test.

2nd Press Keeps the felt weave open without excessive tension of Jack Roll. Prevents picking by open weave. Provides longer felt life, better finish, firmer sheet.

3rd Press Preserves the vital nap of this finishing felt. Vari-Bow Type Roll permits easy bow adjustment. Reduces two-sided paper . . . improves printing surface.

Precision Manufacture, Conscientious Testing

Shown above is Frank W. Preston of Mount Hope's Technical Staff, giving a final inspection to a Mount Hope Roll before shipment. Each Mount Hope Roll is thoroughly tested, operating from 0 to 7,000 fpm., for many hours before shipment.

Maintain Width & Elasticity

In addition to its primary functions of keeping felt threads square and open, thereby facilitating drainage, the Mount Hope Roll can also be used to maintain the running width of the felt.

Also, because the felt is pulled widthwise every time it passes the Mount Hope Roll, the felt maintains its life and elasticity.

For complete data on the advantages and applications of MOUNT HOPE ROLLS when used with felts generally, and with top and bottom wet felts and transfer or pick-up felts write for the three Mount Hope Technical Bulletins on these operations. If your problems are urgent, ask for a Mount Hope Engineer, who will study your operations and make recommendations, without charge.

MOUNT HOPE MACHINERY COMPANY
15 FIFTH STREET, TAUNTON, MASS.

Plants: Taunton, Charlotte and in England.
Sales Engineers in Principal Cities.
World Wide Distributors: Mount Hope Machinery S.A., Lausanne, Switzerland.

Mount Hope Makes the Following Web Control Equipment for Papermakers and Converters:

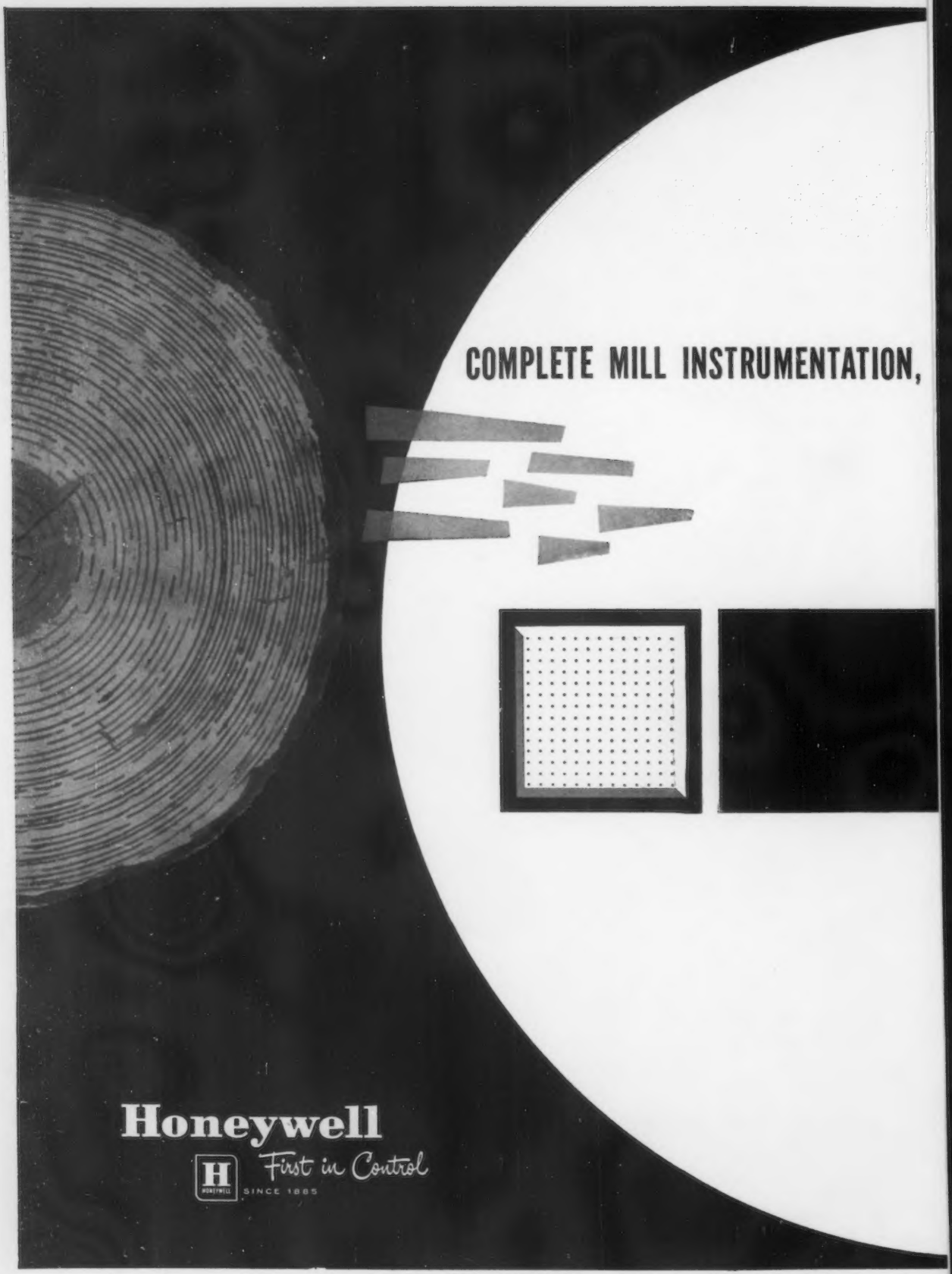
- Mount Hope Rolls
- Vari-Bow Rolls
- Felt Preservers
- Tension Controls
- Floating Roll Guides
- Swinging Roll Guides
- Floating Carriage Guides
- Web Viewer
- Precision Guiders
- Light Duty Wind & Unwind Stands

The following are Registered Trade Marks: Mount Hope; Vari-Bow.

Mount Hope Web Control Equipment MACHINERY COMPANY
15 FIFTH STREET, TAUNTON, MASSACHUSETTS

© 1961 Mount Hope Machinery Company

For more information on the products mentioned above or on any felt or paper handling problem, contact Mount Hope or check the Reader Service Card. Please write in on the card the product(s) you are interested in.


COMPLETE MILL INSTRUMENTATION,
Honeywell
First in Control
SINCE 1885

HONEYWELL STYLE

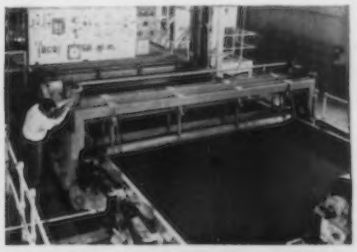
CELOTEX

For the world's most automated fiberboard mill, CELOTEX specified complete mill instrumentation, Honeywell style—*pre-piped, pre-wired, installed, and serviced.*

CELOTEX solved *with one Honeywell contract* the 1001 special instrumentation problems involved in getting the company's new L'Anse plant into production: instrumentation analysis of the fiberboard manufacturing process; supplying the complete control system; installing the control instrumentation with complete pneumatic piping and wiring; testing and calibrating the system; training CELOTEX personnel to operate and service the system; and providing complete guaranteed servicing for one year after completion of installation. *All in one complete package!*

Honeywell's *Pneumatic and ElectriK Tel-O-Set* recorders, transmitters, controllers, and other miniature instruments bring significant savings to this application. They not only save money and panel space but also permit consolidation of instruments into a more compact, easier-to-read graphic panel. All the instruments used in the pulping operation, for example, are grouped on a single panel rather than two or three which would be required if full size instruments were installed. By using both pneumatic and electric instruments in the control system, CELOTEX is able to utilize the inherent advantages of both types.

Find out more about *Complete Mill Instrumentation, Honeywell Style!* Get in touch with your local Honeywell field engineer. Be sure to ask him about the cost- and space-saving advantages of *Pneumatic and ElectriK Tel-O-Set* instruments. MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa. — In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.



■ At the new L'Anse plant in Upper Michigan, The CELOTEX Corporation produces a variety of acoustical and decorative fiberboard ceiling tile, insulating sheathing, insulating roof deck, and roof insulation. The plant is designed to turn out more than a half-million square feet of half-inch fiberboard daily.

■ The L'Anse fourdrinier machine shown here is the widest wet-process structural board forming machine in the world. The graphic panel in the background controls the entire board machine operation.

■ This graphic panel and other instrumentation, made, installed, and serviced by Honeywell for the L'Anse plant, help make this operation "the only one of its kind in which a fiberboard product travels all the way from manufacturing and fabrication . . . to inspection and packaging on a continuous production line."

SYSTEM DESIGN: Giffels & Rossetti, Inc. Engineers • Architects, Detroit, Mich.

HONEYWELL INTERNATIONAL Sales and Service offices in principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

Forming area has been shortened by moving suction boxes and dandy roll towards the headbox.

New pressure headbox was installed to attain head necessary for higher speeds and for better formation.

Hammermill Converts Oswego Board Mill to Fine Paper Operation

By modifying and modernizing this recently acquired board mill for production of fine papers this well known firm has greatly increased capacity at relatively low cost. An on-the-spot report.

Paul D. Van Derveer
Associate Editor
Paper Trade Journal

A most interesting conversion job has been accomplished by Hammermill Paper Co. at their recently-acquired Oswego, N. Y. mill. They have installed equipment and made changes throughout the entire mill to convert it from a food board operation to a high quality fine paper operation. The mill, formerly owned by Marathon Corp., is being utilized by Hammermill to extend their capacity for fine white papers in their relatively large volume items.

Plans for the acquisition of the Oswego mill were announced several years ago when Marathon began construction of its big mill in Naheola, Ala. A new 238-inch board machine was brought into production at Naheola by Marathon last fall and immediately took over the part played by the Oswego board machine. This cleared the way for ownership of the Oswego facilities to be passed to Hammermill, and in early December 1960 they began the conversion to a fine paper operation. By late spring of this year the mill began producing saleable paper.

Mill Started in 1928

The Oswego mill, and in particular the 172-inch fourdrinier machine, has an interesting background. It was first brought into production in 1928 by the Taggart Oswego Paper & Bag Corp. and had a capacity of 90 tons per day of kraft paper. Through the years productive capacity was increased to 150 tons, and in 1949 the mill was purchased by St. Regis Paper Corp. who continued the production of kraft paper. In 1951 the mill was sold to Marathon Corp. who began producing kraft paper and board, then later installed a bleach plant for the production of bleached paperboard for conversion into food cartons. As mentioned previously, Hammermill took over from Marathon in December, 1960.

Close by the Oswego mill is a converting plant still owned and operated by Marathon. It is supplied with paperboard from the Marathon Southern mill in Naheola. Printing operations are still carried on by Marathon in a press room leased from Hammermill. It is expected that this operation will later be transferred to the Marathon-owned converting plant site.

Now We Run!

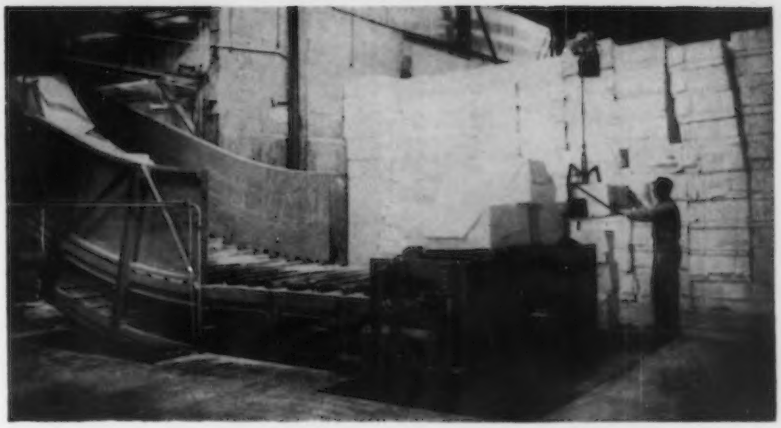
The Oswego mill was extensively refurbished by Hammermill for the production of fine paper; new equipment was installed to replace obsolete items; nearly all remaining equipment was torn down, cleaned and rehabilitated; other equipment was modified and modernized.

One of the most noticeable changes has been in the speed of the machine. Marathon had modified the machine for board manufacture so that it could be operated in the neighborhood of 450 f.p.m. When Hammermill took over, the design speed of the machine was raised to 1500 f.p.m. and they are already running at well over 1000 f.p.m. on fine papers.

The crew members, many of whom worked for Marathon, are well aware of this change in speed. One crewman remarked, "The main difference (between board and fine paper operation) is the speed of the machine! When we were running board and had a break, we walked. Now, we run!"

Many other major changes were made from the pulping area to the finishing line. Two large existing Hydrapulpers were modernized by adding conveyors capable of feeding a uniform charge to them, and providing safety in pulling wires from

the pulp bales. The baled pulp is moved to a location beside the conveyor by fork truck, then placed on the conveyor, wires pulled, then fed to the pulpers as required by remote control. Hammermill is using the 20-foot diameter pulpers to slush pulp at the rate of 6200 lbs. per charge, although the design capacity is 9000 lbs. per charge. Chemicals added at this stage include defoamer and slime killer.



New conveyors have been installed in order to provide uniform charges of pulp to the two large Hydrapulpers.

Use 50% Neutracel

The Oswego mill uses purchased bleached pulp, both kraft and sulphite, received in air dried bales. In addition Neutracel pulp is shipped to the mill in lap form at 50 per cent moisture content from the firm's main mill at Erie, Pa. This is Hammermill's well-advertised hardwood neutral sulphite semi-chemical pulp. The Neutracel makes up about 50 per cent of the furnish to the machine. The company has recently installed a Sandy Hill Kamyr feltless wet machine at the Erie plant which makes it possible to sheet and ship this pulp to the Oswego division as well as the Beckett Paper Co., Hamilton, Ohio, and Watervliet Paper Co., Watervliet, Mich. (See Paper Trade Journal Sept. 4, 1961 for details).

Also in the pulping area, Hammermill has enclosed the railroad siding so that pulp as well as other raw materials may be unloaded under cover. The three stage bleach plant which was part of the acquisition is not in use. An existing filter plant utilized by Marathon to clarify lake water for mill use is no longer in operation. Hammermill instead purchases its mill water supply from the city of Oswego.

Of ten chests with which the mill was equipped, Hammermill is now using three, one as a beater chest, one as a broke chest, and another for white water. A Dorr-Oliver disk type saveall has been installed and the white water system has been revamped and closed up in order to provide a uniform consistency to the machine. The excess is all clarified before going into nearby Lake Ontario.

There were six existing Morden refiners. These have been rebuilt and are still in use as is an E. D. Jones Leviathan jordan.

In the size kitchen area, storage tanks have been added for defoamer and Separan, a furnish additive which improves retention of loading materials. Already on hand and soon to be installed is a 3000 gallon size cooker to replace the existing 680 gallon unit.

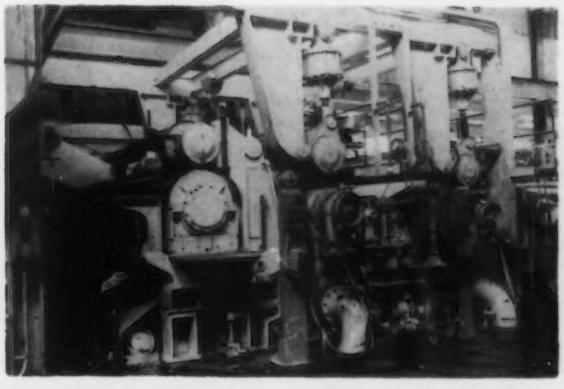
Only white grades of paper are manufactured at this mill, but even white papers require color, and a continuous coloring system has been installed for preparation and metering the color into the stuff box.

In the machine room, Hammermill is using three existing Black-Clawson Selectifiers to screen the stock with a Bird vibratory screen handling the rejects. A battery of Bauer Centricleaners, consisting of 50 primaries, 6 secondaries and one tertiary, has been added to remove any remaining dirt and foreign material from the stock.

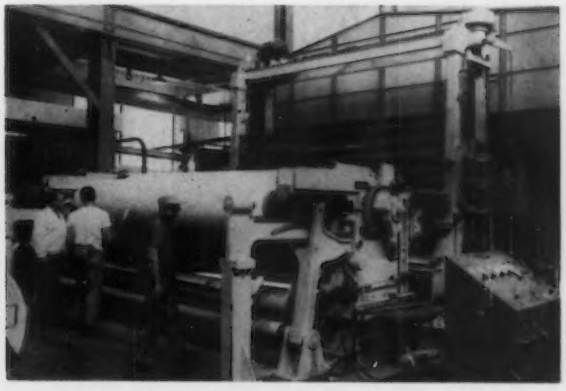
Carrying roll following suction couch has been raised to allow sheet to come off couch at less acute angle.

Machine Speed Increased

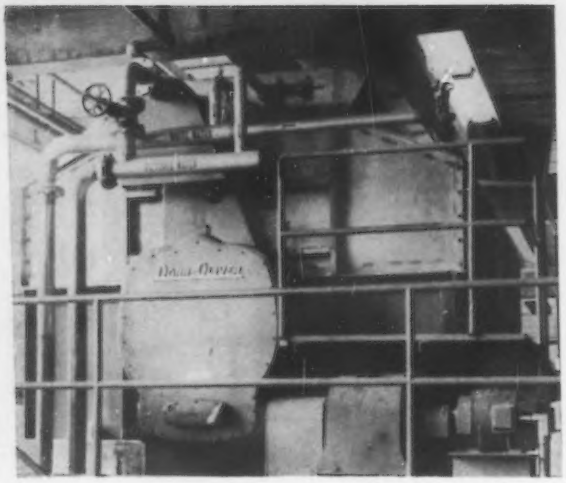
The main feature of the mill of course is the paper machine, a 172-inch fourdrinier trimming 156 inches. It is now designed to produce bond, offset and writing grades in a range of basis weights from 13-32 lbs. (17 x 22 — 500). It is limited to the manufacture of Hammermill's high volume grades of white papers.



Third press was formerly inverted, has been modified so that it now is a straight through smoothing press.



New reel has been installed and one of two calender stacks removed. Hoist moves jumbo rolls to winder.



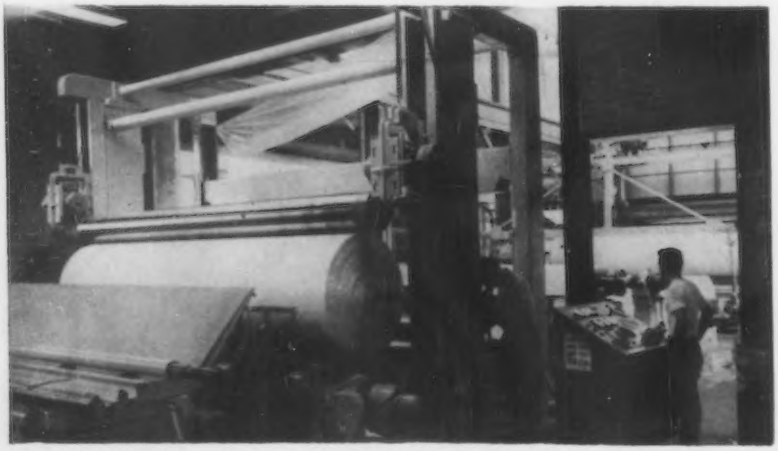
Addition of disk type saveall was included in revamping and closing up of white water system to obtain more uniform consistency.

Incidentally, the company as a whole makes and stocks over 2000 different grades of paper as well as supplying special orders. Currently the machine is producing about 100 tons per day, but as the operation smooths out capacity is expected to reach 150 tons.

The original paper machine was by Bagley-Sewall (now a division of Black-Clawson), but during Marathon's reign a Rice Barton fourdrinier section was installed to replace the original fourdrinier part. Hammermill has added a new Black-Clawson Hydro-Flow 200 pressure headbox in order to obtain the head necessary to run at the higher speeds and for better formation. The forming area which was too long for the lighter grades now being made has been shortened by moving the suction boxes and dandy roll towards the headbox.

The dandy roll is now situated about two thirds of the way down the wire between the third and fourth suction boxes. There are a total of six suction boxes and a Rotabelt. The space formerly occupied by the boxes now contains three table rolls spaced to support the wire. Reason for the shorter forming area is that extremely low consistencies would have to be used to carry water to the dandy roll, resulting in an excessive amount of water to be handled by the white water pit, headbox, fan pump and associated equipment.

The new dandy roll at 30 inches diameter is relatively large because of the higher speeds and is driven. The number of table rolls total 22, including the three functioning as wire carrying rolls between the last suction box and the couch. All the wire carrying rolls as well as the other rolls in the machine have been balanced for speeds up to 1500 f.p.m. The old vacuum system has been replaced with a new one.



New winder is followed by hydraulic lowering table with remote operated shaft puller. Space at this end of machine was formerly occupied by coater, air dryer and sheeter.

The fourdrinier part has also been equipped with a new suction couch having a narrower suction box then the previous couch roll. This change ties in with another, the repositioning of the carrying roll to the first press. The carrying roll was raised to allow the sheet to come off the suction couch at a less acute angle; the narrower box was necessary for this same reason. By coming straighter off the couch, the sheet can be run with less tension, thereby reducing the possibility of a break at this point.

The press section formerly consisted of straight through first and second presses with a reverse third press. The third press has been modified by removing the felt and switching top and bottom rolls so that the bottom one is the hard roll and the top roll is rubber. In effect it has been converted to a smoothing press with the sheet passing straight through.

Reduced Draw Problems

Another modification to the machine, aimed at elimination of potential draw troubles, was made in the dryer part. Previously the machine had three dryer sections with separate drives and felts. Hammermill has tied the first two sections together in the new drive setup although the sections have not been significantly changed in regard to dryer felting arrangement. Additional felt dryers have been installed, but each section still has its own top and bottom dryer felt.

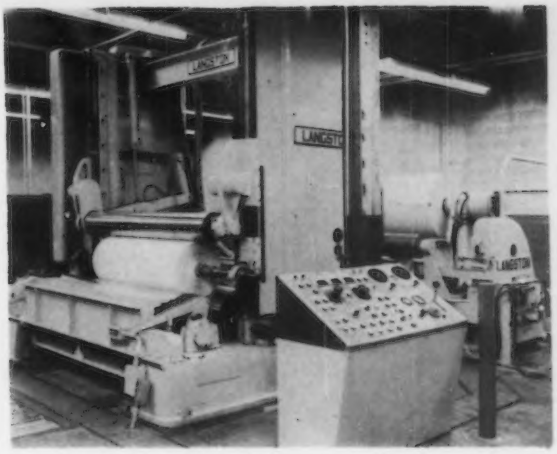
The last dryer section has been extended by the addition of four paper dryers. This section also is equipped with top and bottom dryer felts. There is a total of 33 paper dryers and 10 felt dryers in the main section, and 11 paper dryers and 2 felt dryers in the last section.

Located between the main dryer section and the last section is a vertical size press. This has been raised to give a better paper pass line and to make it easier for the operator.

One of the two calenders with which the machine was previously equipped has been removed. This made room for the additional dryers. The remaining calender is an eight roll stack. Equipment for calender cooling has been added so that tighter, more uniform rolls may be obtained.

An on-machine coater together with an air dryer and a sheeter, which were located behind the machine during its board producing period, have been removed. Now, since its conversion to a fine paper machine, the space is occupied by a

new Beloit reel and winder. A new hoist moves the jumbo rolls from the reel to unwind stand. The winder is followed by a hydraulic lowering table with remote controlled shaft puller and a weighing platform flush mounted at floor level.



New 80-inch rewinder with shaftless backstand is located on floor below main operating level.

Makes Both Rolls and Sheets

Following the winding operation the rolls are moved by fork truck to a roll wrapping station or to the sheet finishing operation. Both of these installations are new. The finishing line includes a new 100-inch Clark Aiken cutter and 100-inch Harris-Seybold trimmer. Primarily, Hammermill ships the paper in roll form from the Oswego plant with only a limited per cent of the production being finished here.

The finishing room is located adjacent to the machine room and on the same floor level. Directly below is a new 80-inch Langston rewinder with shaftless backstand. Rolls are moved from one floor level to the other by elevator.

Other improvements included painting and new lighting for the machine room and revamping of the air handling system. Two new Morden broke pulpers were installed, one below the size press, the other replacing a beater under the calender stack. Extensive work was done in the dryer section on condensate removal, and new scoops were installed in all dryers.

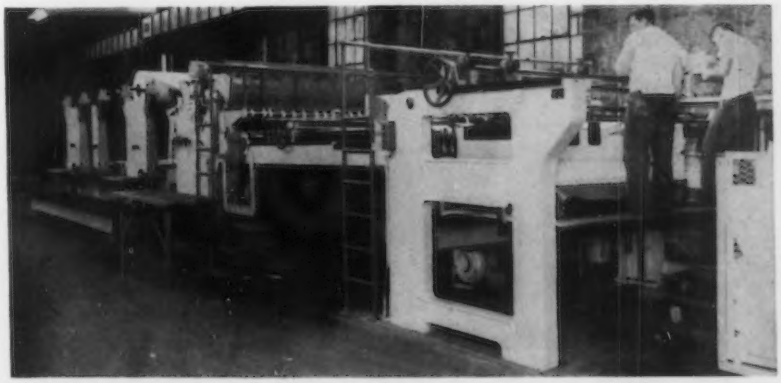
The paper machine's General Electric electronic drive has been refined and modernized extensively with the main items of interest being changes in the dryer section and in the starting drive. As mentioned before the first two dryer sections were tied together in a new drive arrangement. The starting drive has been changed to provide more torque for inching and starting. And, of course, the gearing has been changed and the machine balanced for speeds to 1500 f.p.m.

Parts for the machine rebuilding job (the fourdrinier was completely dismantled and rebuilt) were supplied by Black-Clawson's Paper Machine Division at Watertown, N. Y. The same division did most of the heavy machine modification.

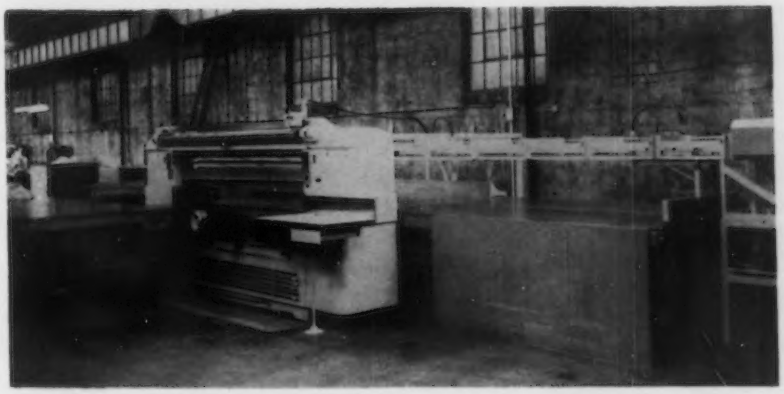
Experienced Staff

Manager of the Oswego Divis.on is **Victor S. Oakes** who has been a member of Hammermill's organization for nine years. Both Mr. Oakes and **George W. Bailey,** superintendent of operations, were formerly at the firm's Erie plant. Mr. Bailey has been with Hammermill over 25 years. **W. J. Bitting,** also from Erie, is personnel manager. Plant engineer is **Paul J. Dowling,** and technical coordinator is **Paul E. Daly.**

The paper machine is running well and producing high quality paper although some production problems are still being encountered as new grades are introduced. The result of this project is that Hammermill has increased their fine paper capacity in a short time at a cost of some $5 million. The mill is in a good location to supply the East Coast and New York City markets. Its operations are closely integrated with those of the company's main plant at Erie.



Sheet finishing operation includes new 100-inch cutter. Paper is shipped from mill in both roll and sheet form.



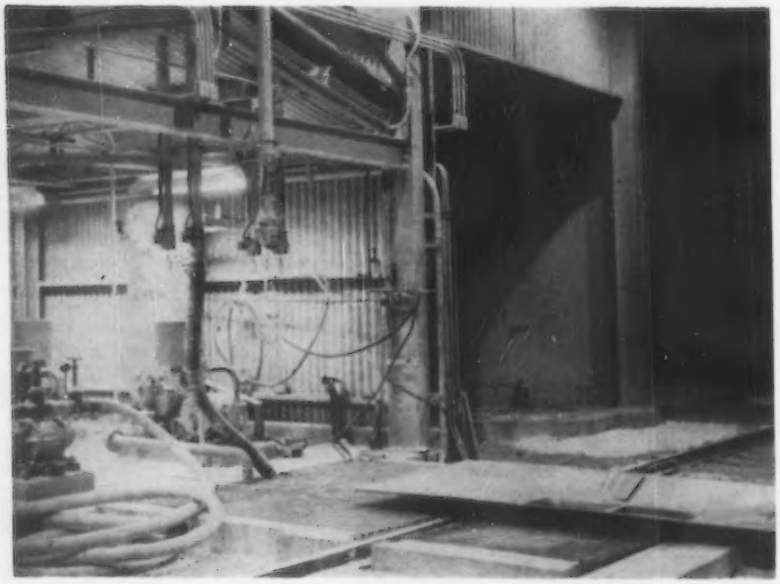
Finishing line includes new 100-inch trimmer. Greatest percentage of paper is shipped in roll form.

Aim for Versatility in Design of Dry Bulk Unloading Systems

Many dry bulk materials called for in coating and additive operations may be unloaded economically by use of a multi-service system which reduces plant area requirements as well as unloading time.

William G. Farin
Chemical Materials Handling Engineer
Neenah, Wis.

When additive and coating makeup operations are grouped in a centralized area, it is possible to use a common dry bulk unloading system for such materials as size press starch, internal starch, calcium carbonate, coating clays, internal clay or any other dry bulk material where quantities used warrant bulk handling. Before initiating any design work, however, it is highly advisable that all material suppliers involved be called in to advise as to handling characteristics and recommendations for each product involved. With these recommendations you are in a better position to appraise the utility of manufacturer's equipment and avoid difficulties encountered by others. To handle all of the above products, unloading facilities must be versatile, suitable for unloading both hopper and air slide cars and designed to handle both free flowing and bridging materials.

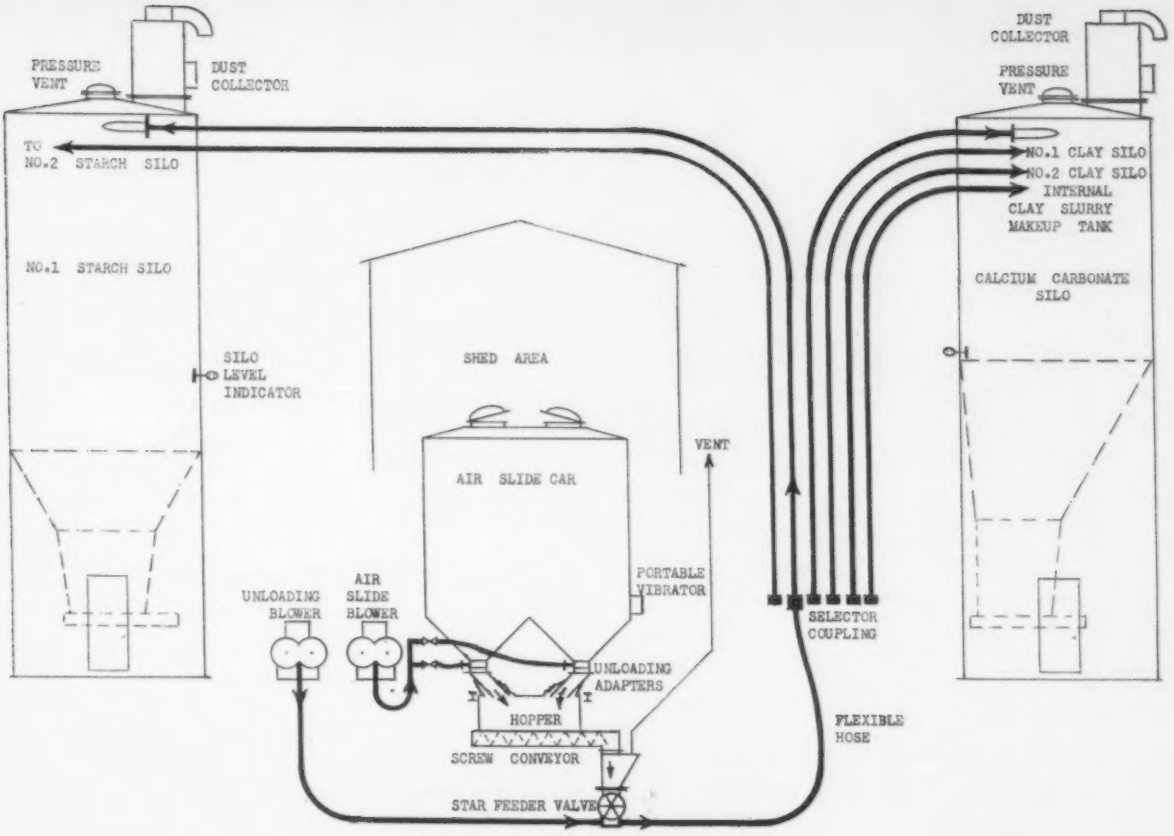


In the centralized dry bulk unloading station shown, the left blower supplies air through a double hose to dual conveyors on air slide cars. Although closed adapters are needed for air slide cars the two piece hopper extensions shown in position are adequate for hopper car unloading. They are normally slid into position after the car is spotted. Material drops through to a screw conveyor feeding a star valve. The right blower provides air to pick up the material in the star valve and conveys through the selector station above the blower to the proper silo. Compressed air tank in background provides air for air lances, vibrators and purges in system.

Unloading Facilities

Include in unloading facilities a fair sized unloading pit, a covered unloading station, a car spotter for hopper and large air slide cars, an air slide blower for air slide cars, a good portable vibrator that kicks up a storm and will attach to the slots provided on the cars and an air lance to break up bridging materials. The user of these facilities is quick to learn that the most difficult part of unloading is getting the material from the car to the initial point of conveyance. He will soon learn the value of keeping openings as large as possible with little or no restrictions. Unloading equipment with restricted openings make his job more difficult and lengthen unloading time. Bridged materials made compact by shipment can be broken up with air lances and will then discharge freely if the large hopper car opening is maintained.

For a versatile unloading station an adapter system may be provided with flexible connections to clamp to and provide a closed joint to hopper



TYPICAL DRY BULK UNLOADING SYSTEM

Material is discharged from the hopper car by gravity, or aided by an air slide conveyor on cars so provided, dropping to a screw conveyor feeding a star valve. Air is delivered by a constant displacement blower, picking up the material at the star valve and conveying through a selector coupling to a centrifugal inlet at the proper silo. Each silo is equipped with a filter with automatic cleaning system.

cars. Adapters may also be supplied for extending this connection making an air tight connection to air slide cars. These connectors discharge to a closed hopper feeding a screw conveyor that has an opening the full width of the track.

As an alternate for hopper cars, full openings may be maintained by providing a large open unloading hopper or by attaching portable hopper extensions that can be slid into position by the operator after the car is spotted and prevent overflow. This eliminates the labor of bolting or clamping fittings but does not confine the product sufficiently for use with air slide cars.

Pneumatic System Preferred

There is a great variety of conveying equipment available which could be used for bulk unloading. For a multi-service system the pneumatic system is preferred because it is versatile and holds intermixing and contamination to a minimum. Although a vacuum pneumatic system has the advantage of reducing hazards, the pressure system is much more economical. Some of the worthwhile advantages of both can be obtained by a combination push and pull system which unloads by vacuum and then blows the product to the silo.

The unloading conveyor in the hopper which feeds the pneumatic system should have a variable speed drive to enable handling the various materials of different bulk densities at maximum rates. The star valve is designed to handle full conveyor capacity at maximum speed. A little extra capacity and pressure range in the constant displacement blower will take care of contingencies and help relieve plugs. To safeguard equipment, the blower is provided with a pressure switch to kick out the motor at extreme pressures. On the discharge of the star feeder a selector coupling is used to select the silo that is to receive the material being unloaded. The silos are equipped with weighted vents to relieve any pressure buildup.

What to Do About Dust

To take care of the air from the pneumatic system and entrained dust, a proven dust collector with continuous or intermittent cleaning systems is advisable. Allow the cleaning system to operate periodically with the blower off if a reversed air flow system is not designed into the collector to allow agglomerated dust particles to fall freely into the silo.

On a pressure pneumatic system a second source of dusting develops at the product inlet to the star feeder. Besides the small amount of air leakage around the clearance of the star valve, the openings between the vanes are full of compressed air as they rotate toward the product inlet.

Roof view of additive and coating preparation building shows steel epoxy lined silos supplied by bulk unloading system. Penthouse encloses starch weighing system for size press and internal starch.

Additional air comes in with the product from the air slide conveyors in air slide cars. This air may be vented from a hopper over the star valve which allows the product to settle and the air to be vented to a central dust scrubber designed to handle all the dust hazards in the preparation area. The vented air velocities can be kept low and dust losses will be negligible.

On any conveying system interlocks are desirable as a precaution against mistakes or equipment failure that could cause damage to other equipment. In this case it is desirable to interlock the selector coupling to the correct dust collector. The operator then has to make a double mistake in order to convey to the wrong bin. Interlocks require the dust collector to be on to start the air blower, both to be operating to start the star feeder and all three to be operating to start the screw conveyor. Any equipment shutdown stops all equipment feeding it. Selector couplings as well as panel push buttons should be well identified to prevent mixup.

Do not underestimate the penetrating effects of a driving rain or washup operations in sealing off dust collectors, silos, hoppers and conveying equipment. Any moisture getting into a dry bulk handling system will plague it with plugging and breakdowns.

Precautions in Handling Starch

Even though starch is a fairly free flowing material, it is very difficult to handle and requires special precautions. The various types of starch react differently when heated and some types present more operating difficulties than others. Common to all types is the tendency to dust and the highly explosive potential created. Storage and conveying equipment are preferably kept outside and require very large explosion doors or openings to relieve the high pressures created by a starch explosion. On high capacity silos, the full cover is sometimes designed to lift to release the force of an explosion. Precautions are necessary in the design of conveying and nearby equipment to prevent any igniting possibilities. Under no circumstances, for instance, should the air lance be used in starch because of the possibility of sparking.

Starch is especially troublesome when it can get into seals, bearings or build up on close clearance equipment. The heating effects in these areas cause the starch to swell, then glaze and jam up equipment. It has been necessary in some cases to relieve close clearance working parts on the sides of star feeder vanes as high as 30 degrees to provide a cutting action and prevent buildup. Air purge connections with about 20 pound air supply are sometimes necessary at the hub of star feeders to keep starch out of the hub, seals and bearings before the units will give satisfactory performance. Again, a knowledge of the characteristics of materials handled and means used to eliminate difficulties are essential to a successful startup.

Advantages of Multi-Service

The advantage of using a multi-service unloading system obviously is that it will receive greater usage and substantially reduce the payoff period of the equipment. It reduces plant area requirements and confines operating coverage. The reduced payoff period also enables the inclusion of extras that facilitate the unloading of all materials and reduce unloading and operating time in transferring material to storage where it is ready for use in makeup operations.

This is the second article by Mr. Farin on the subject of handling coating and additive materials. Part I appeared in the Sept. 11th issue of Paper Trade Journal.

Dust collector takes care of dust problems of preparation equipment by water scrubbing all air from central exhaust system.

FIGURE 1: Self-supporting exhaust stack fabricated of reinforced plastic and largest ever built, being shipped in one piece.

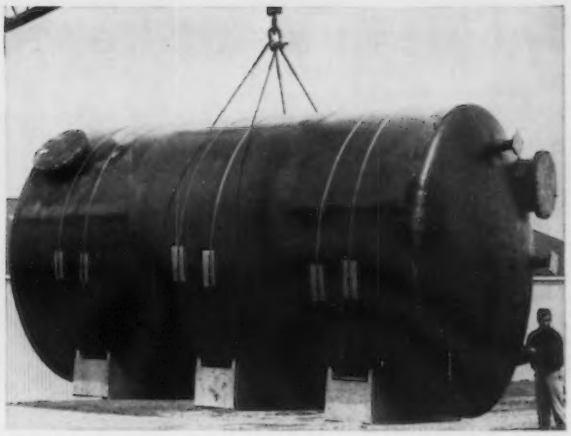


FIGURE 2: Reinforced plastic storage tank of nearly 2 J00 cu. ft. capacity withstands 30 ft. head of liquid without external reinforcing rings.

Reinforced Plastic Vessels Know No Limits In Size

Reinforced plastic construction produces large, homogeneous structures of great strength, high corrosion resistance, factory fabrication, with whole unit shipment.

Process vessels in sizes normally thought of as requiring all-metal construction can now be fabricated of corrosion-resistant, reinforced plastic. In fact, say du Verre, Inc., engineers, the only limiting factor today in factory-fabricated RP equipment lies with existing transportation methods. Even then, they state, this does not pose an absolute limit because large, "transportable components", can easily be shipped and "welded" in the field.

As a case in point, the 50 ft. x 5 ft. exhaust stack shown in Figure 1 has a record of many months service handling up to 70,000 c.f.m. of hot, 150° F. corrosive acid fumes. Said to be the largest self-supporting exhaust stack ever built, it is designed to withstand the buffeting of winds up to 100 m.p.h. without support from structural steel or guying cables of any kind.

Located in an area subject to highly corrosive atmospheres, it requires no painting or maintenance of any kind. Fabricated in du Verre's Arcade, N. Y. plant, it was shipped cross-country and erected in one piece.

Another example of du Verre's large-size fabrication is the huge 11½ ft. x 9 ft. saturated brine storage tank shown in Figure 2 ready for shipment to an eastern paper mill. Fabricated from du Verre No 11 resin supplied by American Cyanamid, it withstands a 30 ft. head of saturated brine water without external reinforcing rings. Internal rings are of plastic fabrication. No metal support or reinforcements of any kind are used, reducing corrosion to an absolute minimum.

These examples indicate the variety and size of construction available at du Verre where over ten different resins including polyesters, epoxys, furans, and others are used to combat various corrosion problems often involving temperatures as high as 300° F. Chopped mat strand, woven roving, and synthetic textiles such as dynel and nylon impart the required strength in relation to vessel size and shape.

Where additional strength is needed, du Verre's knowledge and use of RP reinforcing rings, gusset plates, and radial and longitudinal ribs permit construction of entirely self-supported vessels.

In addition, methods of fabrication permit perfect alignment of parts because the resins are easily drilled, machined, or ground to precise tolerances. Mat welding techniques both in the shop and in the field, assure leakproof, corrosion-resistant joints that hold equipment permanently in line.

All this is accomplished, du Verre engineers say, at a great savings in cost. For instance, lighter weight (normally ¼ that of corresponding metal or lined equipment) is responsible for significant savings in shipping and rigging costs. The equipment is more readily repaired or altered in the field, has high resistance to corrosion, and practically eliminates replacement. Multiple fabrications associated with lined equipment (often done at *different* facilities) are unnecessary, eliminating intermediate shipping costs and handling, and, of speeding up delivery time.

du Verre, one of the first reinforced plastic fabricators in the country, began operations over 12 years ago and was immediately successful in selling RP construction to a number of companies confronted with costly corrosion problems.

Trends in Kraft Paper Machines And Manufacturing Techniques

A point by point analysis of the machine shows where improvements have been made and where more research is still needed. The manufacture of multi-wall grades is specifically discussed.

M. L. Boinest
Paper Mill Superintendent
Halifax Paper Co.
Roanoke Rapids, N. C.

Needless to say, I consider it a rare privilege to represent the kraft paper manufacturers of the United States in this discussion today, but I must confess that as I look around this room, I realize very quickly that though I am more than 300 miles from home, I am not yet far enough away to qualify as an expert. I see in the audience a number of my colleagues who are eminently conversant with the subject, and for their protection and my own later, I would state here and now that the opinions which I will express are my own and do not necessarily reflect the total thinking of the kraft manufacturers of the United States as a group.

When I was invited to speak here, I was requested to analyze kraft paper manufacturing techniques, considering primarily differences in paper machine operation and paper strength characteristics, more specifically in the multi-wall grades. This is, as you can readily appreciate, an extremely broad field and does not lend itself to more than a superficial treatment within the allotted time. For this reason, I will attempt to touch the "high spots" and dwell on only these phases which seem to me to characterize the principle production differences here in the United States.

To facilitate this presentation, I should like to speak specifically about four general areas of kraft manufacture and particularly of multi-wall sack grades, as produced in the southern United States and on the west coast.

Wider and Faster Machines

The first general topic would be the equipment used and specific operating information regarding this equipment, both as to the machine and to the auxiliary equipment. Kraft manufacture in the States today is characterized I think, by two specific things; namely, size of machines and speed of operation. Today as has been the case in the last ten years, the trend is to wider and faster machines with trim widths of 230 inches or better being commonplace and speeds in almost every case of 1500 to 2500 feet per minute range. Reasons for this trend, I think, are self-evident. Throughout the country higher production rates are the order of the day, and engineering design and technology, as well as operating "know-how," must continue to follow this trend.

Higher productivity per manhour has been forced because of the continuing increase in labor rates. A decade ago, a productivity of six to seven man-hours per daily ton on a paper machine was considered satisfactory. Today the figure is about one manhour per daily ton as a maximum. The second factor, I think, which has necessitated the faster, and higher productive units has been the extremely high capital cost of equipment necessary in the manufacture of our products. Replacement costs continue to rise, and since today paper machines are generally financed on at least 100 per cent of capacity production, high machine availabilities and high production rates are essential.

"Speeds and production rates on paper machines today are generally limited by the inability of the paper maker to put a satisfactory sheet on the wire with the tools at his disposal."

More Research on Headbox Needed

Now, let us take a look for a moment at the machines themselves. Since we are discussing primarily kraft multi-wall sack, we will confine ourselves to the fourdrinier machine. Starting with the inlet and the headbox, we find substantial changes within the last several years. Much has been learned and published in the last five years concerning the hydraulics of the inlet and the headbox. Much more research in this area is essential for it is my opinion that speeds and production rates on paper machines today are generally limited by the inability of the papermaker to put a satisfactory sheet on the wire with the tools at his disposal. This fact is apparently well recognized in the industry and both the papermaker and the machine designer are hard at work in an effort to solve these problems. It is my considered opinion that within the next five years the character of this portion of the machine may change dramatically and that we may look forward to paper speeds in the range of 3500 to 5,000 feet per minute.

Headboxes today are primarily of the enclosed pressure type because of the physical head requirements and the volume control requirements of normal headbox hydraulics. Head-

box consistencies are tending to go lower as advancing technology improves water removal facilities further along the machine. Headbox consistencies in the magnitude of two-tenths of one per cent or less on 40 lb. and 50 lb. multi-wall are fairly uniform.

With improved techniques in hydraulics, slice velocities are more adequately controlled than at any time in the past, and deviations from theoretical heads are today a relatively minor consideration. Flow patterns from the slice continue to plague the paper makers as headbox velocities increase. The effects of turbulent flow become accentuated, and of course, such flow is uncontrollable. A discussion in detail of these problems is far beyond the scope of this presentation, but the problem I am sure is well-known to all those concerned with machine operation on high speed equipment.

Little Change in Fourdrinier

The fourdrinier section has changed very little in the last hundred years. As widths and speeds has gone up, roll sizes and wire lengths have also increased, but the basics of the fourdrinier remain virtually unchanged. Innovations, all of which have some merit, unquestionably have come into being. The forming boards adjacent to the breast roll have been employed in all manner of sizes and configurations. The basic job of the forming boards, however, remains unchanged and their use is familiar to everyone.

Table rolls and deflectors have increased in size and in numbers, but here again no major design changes have been experienced. The pumping action of the table rolls as their diameters and speeds have increased has become an increasing factor in the water removal process, and at the same time has become more of a problem for the paper maker because of the part it plays in the deformation of the wire and the attendant difficulties of achieving satisfactory formation of the web.

In the flat box section, numbers of boxes and the amount of vacuum area have been substantially increased. At the same time, so has wire wear. This has necessitated the innovation of the Rotabelt and various types of improved cover designs and materials as well as some unique designs in vacuum control systems. All of these tools you can see are designed to increase the rate of water removal.

Suction couch rolls have constantly been growing larger in diameter. This allows for larger vacuum areas and improved wire driving facilities to achieve better water removal and more positive horsepower input to the section. On the larger machines multiple drive rolls in the fourdrinier section have become essential in order to distribute power throughout the section. These have been necessary because of the increased vacuum loads and the increased dead weight loads on the large machines at the higher speeds.

Press Section Variations

In the press section we probably find more differences on existing machines in this country than in any other single unit of the machine. Some machines are still being installed for kraft manufacture with conventional straight-through presses of both the vacuum and plain type. Such machines are today operating satisfactorily at speeds up to 1700 feet per minute. Through the addition of the vacuum pick-up arrangement, much faster speeds are made possible and speeds on multi-wall grades have been maintained satisfactorily in excess of 2200 feet per minute.

The so-called closed press section wherein the sheet is supported continuously by a wet felt from the wire to the dryer sections has also made possible higher operating speeds. The inverse or upside down press has played a major role in this development in that it allows press configurations adaptable to straighter and shorter draws which make possible higher speed operation safely.

Press loads have also increased substantially and today, on multi-wall machines, presses loaded in the

---

The article appearing on these pages is from a speech given at a meeting of engineers and technical people from mills throughout the world making Clupak extensible paper. The two-day conference, the third in a series of annual international technical symposiums hosted by Clupak, Inc. was held at Sea Island, Ga.

The manufacture of multi-wall grades of kraft paper as practiced in various countries was the subject of speeches by representatives from three prominent mills. R. R. Pinard of St. Lawrence Corp., Montreal, discussed Canadian methods; Jorma Jukka of Enso-Gutzeit Osakeyhtio, Helsinki, spoke on Finnish techniques; and Mr. Boinest represented the U.S. Further talks were also given on the latest technical aspects of Clupak extensible paper production as well as the latest research and development work. Some 40 engineers representing 18 companies attended the conference.

The manufacture of extensible paper is still rapidly advancing since its introduction four years ago with many new uses being developed. One of the primary applications at present is in multi-wall sacks, and extensible paper has captured over 25 per cent of this market. Other uses include grocery bags, padded bags, garment bags, wrapping, wax laminated and polyethylene coated papers, liners for railroad cars and drums, saturating grades and gummed tape.

There are 17 extensible units now in operation with five more scheduled for startup before the end of the year. The largest unit is 264 inches wide, the smallest (in Japan) 98 inches. Basis weights of extensible paper made commercially range from 20 lbs.-120 lbs. (24 x 36-500) although units could be tailored to handle either lighter or heavier papers.

The latest extensible unit to go on line was installed on No. 1 machine at Hudson Pulp & Paper Corp.'s mill at Palatka, Fla. Clupak now has nine licensees with eleven extensible paper units supplying the domestic market. So far, Clupak, Inc. has licensed 23 companies to manufacture extensible paper. Other than those in the U. S., two are in Canada, one on Taiwan, two in Scandinavia, six in Japan, one in South America and two in Europe.

There are six machinery manufacturers licensed to build the Clupak extensible units. They are: Beloit Iron Works and Sandy Hill Iron and Brass Works in the U.S.; Escher Wyss and J. M. Voith in Germany; Mitsubishi Heavy Industries in Japan; and Walmsleys (Bury), Ltd., in England.

"It is my considered opinion that within the next five years the character of the inlet and headbox of the machine may change dramatically and that we may look forward to paper speeds in the range of 3500 to 5000 f.p.m."

vicinity of 350 to 400 pounds per lineal inch are not unusual. Many machines are equipped with smoothing presses and a few with hot press arrangements designed to aid in water removal and to improve drying efficiencies in the dryer sections.

From all of this, you can see that the effort of the American papermaker is being concentrated toward putting a dryer sheet to the dryer sections, again for improved production rates and in an effort to decrease the capital equipment costs in the installation of a manufacturing unit.

Better Draw Control in Dryer Part

On the modern high speed kraft machines, we will almost invariably find multiple dryer sections generally shorter than in years gone by. The number of dryers in a drive section will now almost always be found to be between 10 and 20 five-foot dryers. This, of course, allows for additional draw control throughout the dryer part, where the sheet is shrinking, and should be reflected in increased strength in the finished product and in safer operation. I will not dwell too much on this particular aspect since I am sure our Scandanavian friends have far more experience in this area and probably will comment in greater detail.

On the wider machines, auxiliary air systems in the dryer sections are almost a must in order to obtain even a reasonable moisture profile. Steam pressures vary from about 50 pounds to 125 pounds gauge on the drying cylinders with more and more installations tending to the higher pressures. Generally all dryers are felted to improve sheet contact and enhance heat transfer. Adequate felt drying equipment in the dryer sections is desirable, but I find that in most machines, felt drying systems are inadequate.

In the last year or two, much interest has been generated in the high velocity air dryer. So far as I am able to determine, experience with this equipment has not been completely satisfactory. It unquestionably holds real promise for improvement in the moisture profile, but where it has been used for production drying purposes, results have been "spotty" at best and unquestionably operating costs on this equipment are high. It is my belief that such drying, if it is effective at all for production purposes, would certainly be limited in application because of the economic considerations involved.

With the advent of high pressure dryers the need for cooling cylinders at the end of the dryer section has become apparent in order to reduce sheet temperatures ahead of the reel. It is my opinion that the high temperatures which are achieved in the reel have a significant degrading effect on the strength properties of our product and that more attention will in the future be given to this factor as the requirements for strength increase.

Optimum Breaker Stack Location

The use of breaker stacks in the dryer sections and size presses are well known to all of those skilled in the papermaking art. Breaker stack locations seem to vary widely on kraft machines. It is my opinion that the breaker stack located at the point of 35 to 45 per cent moisture is optimum. This particular position seems to be desirable because of the improvement in compaction of the sheet with an attendant improvement in drying efficiency, and also in the improvement in life of the roll covers. We have found that water cooling of the soft roll in the breaker stack is of distinct advantage in extending useful life of these rolls between grindings.

Calender stacks are generally of the open side or the closed type with no major changes from standard procedures with the possible exception of some improvement in roll alloys and in the so-called anti-deflection rolls. Improvements in nip controls and roll temperature control systems have aided in improving reel quality and reducing rejects.

The paper machine drives on recent installations are generally of the mechanical differential type or the sectional electric with some recent installations employing the old cone pulley drives with the improved plastic belts. The modern paper machine drive of any of these types provides reasonably adequate draw control along the machine so that the machine wire-to-reel differential speeds can be satisfactorily maintained at from 2 to 5 per cent.

Considerable work has been done in the area of draw control, and the evaluation of its effect on sheet properties, particularly by some of our friends on the west coast. The major area of draw differences on existing machines seems to be in the area of the couch and the first press in that the vacuum pick-up arrangement allows for an almost negligible draw to the press section, whereas on the conventional open type machine, this draw constitutes a major speed differential.

Wire and Felt Life Improved

So much for the components of the machine itself. Now, let us for a few moments take a look at the economical considerations involved in the operation of these machines. Due to the complex nature of the machine itself, and its auxiliaries and with the improvement in technology, a number of economical benefits have accrued to the American paper manufacturer as a result of the improved technology of the suppliers of machine parts and clothing.

In the fourdrinier section, wire life, a constant problem for the papermaker, is showing substantial improvement today due to some of the equipment innovations, which I have mentioned earlier, as well as to improved metallurgy in wire manufacture, seaming technique, improvement in vacuum control systems on the flat boxes and in auto-

"The effort of the American paper maker is being concentrated toward putting a dryer sheet to the dryer section for improved production rates and in an effort to decrease capital equipment costs during installation."

matic tensioning devices. Just now, everyone, I am sure, is interested in the results being obtained through the introduction of chemical additives to the inside surface of the wire, which are purported to extend wire life at times as much as 50 per cent. The use of stainless steel wires is worthy of mention, although experience with these at this time is quite limited. The status of plastic wires, while still unproven, seems to hold some very definite promise, and it is my belief that when some of the problems inherent in this material are worked out, we can look for a substantial change in the character of the paper machine itself as a result of using these materials.

In the press section, the techniques of wet felt manufacture through the incorporation of synthetic fibers and in varying felt designs have reduced the clothing cost in this area to a degree undreamed of five years ago. It was not so many years ago that on a high speed kraft machine a press felt life of 30 days would be considered excellent. Some of those same machines today are achieving life on the same positions of 60 to 90 days and in my own mill last year the wet felt costs in total dollars on two 246-inch machines producing 215,000 tons was less in total dollars than the wet felt cost for one machine producing 35,000 tons five years previously. This experience while dramatic is not, I think, unusual in our industry and with the coming of still newer designs, particularly in the field of needled felts, I believe that further improvements in clothing life will be achieved. The incorporation of synthetic materials in carefully designed dryer felts is showing substantial improvement in dryer felt life with an attendant improvement in costs for these fabrics.

Multi-Wall Tonnage Declining

All of these advancements in machine sizes, speeds, and improvements in availability would not mean very much unless at the same time improved production rates were evident. Ten years ago a kraft paper machine producing multi-wall grades at the rate of 200 tons a day would be considered a large producing unit.

"We can look for a substantial change in the character of the paper machine itself as a result of using plastic fourdrinier wires."

Today tonnages of twice that figure or better are being achieved regularly. Those of us producing multi-wall grades should stop and think about this particular facet for a moment for the multi-wall sack industry is declining tonnage-wise. For example, in 1959 approximately 832,000 tons of conventional and extensible multi-wall paper were produced in the United States. In 1960, the total was 784,000 tons, and it is interesting that of this total—102,000 was in extensible grades. The total multi-wall sack production in 1961 is estimated to be slightly less than that in 1960, and it is interesting, I think, to note that so far, extensible manufacture has been at the rate of 125,000 tons for an increase of about 20 per cent over last year if this trend continues.

Raw Materials

So much for machines and operating procedure. Now, let us, for a few moments, take a look at the materials with which we work and the end product which we produce. Our basic raw material, of course is kraft pulp. Some mills are today pulping hardwoods by the kraft process and are using quantities of hardwood pulp in certain kraft grades. I know of no producer using any quantities of hardwoods in conventional multi-wall grades, although there may be some. I think it is a fair statement that permanganate numbers on kraft stock for multi-wall are generally in the range of 23 to 28. Stock freeness on the paper machines is probably in the range of 600 to 750 cc's Canadian standard, and as I have previously mentioned headbox consistencies are in the order of two-tenths of one per cent.

Generally, pH control is being accomplished through the introduction of mineral acids in the unrefined stock system and normal sizing is being accomplished through the use of rosin-alum complexes and in some cases through the introduction of wax. Some manufacturers are utilizing various types of converted starches and gums in order to achieve higher strength at higher freeness and higher speed. Some manufacturers of multi-wall grades are employing size presses utilizing starch, or simply water, as an aid in improving both strength and finish.

As far as paper strength is concerned, the basis for specifications in the multi-wall field is generally conceded to be Federal Specifications UUS-48C and rule 40 of the Uniform Freight Classification. Now, there are undoubtedly deviations from these specifications in individual mills, but I believe it is a fair statement that these documents constitute the general basis of multi-wall sack specifications. In our mill, we have adopted the Federal Specification as a lower control limit, with the standard specifications set somewhat higher and corrective action is taken on the paper machine when average test values fall below the minimums as outlined in the Federal Spec.

Interest Increasing in CD Stretch

I think I need not dwell on test procedures as in almost every case these test procedures are well defined in TAPPI Standards and most mills, I believe, employ standard test procedures. In our mill, we have always felt that machine direction tear, cross direction tensile, and the general moisture level were the most important tests in producing satisfactory multi-wall sack kraft. Recently, cross direction stretch values have become of increasing interest, and it is our thinking now that the cross direction stretch in combination with the tensile and the resultant tensile energy absorption may be the most important criterion in multi-wall sack manufacture in conventional, as well as, extensible grades. At this time, we do not have in our mill a hard and fast specification on cross direction stretch beyond measuring this property on a routine basis, but I believe specifications in this area on multi-wall sack will soon be established.

In extensible manufacture, the important considerations are stretch, in both the machine and transverse directions, and the tensile energy absorption characteristics. In specifications here, conformance to rule 40 of

"Recently, cross direction stretch values have become of increasing interest, and it is our thinking that cross direction stretch in combination with tensile and the resultant tensile energy absorption may be the most important criterion in multi-wall sack manufacture."

"We have in recent years in the U.S. too often sacrificed the quality of our production on the altar of higher production in an effort to gain competitive advantage in the market place."

the Uniform Freight Classification and other specifications set forth in the Clupak license agreement are accepted practice. In this instance, mill standards are again established at somewhat higher than those given in the specification and the specified documents are used as minimum control levels for operating purposes.

Quality of Product

Now, with all of the equipment and operating procedures and testing methods that we have outlined, let us take a look for a moment at the kind of product we are turning out. I should like to say that better designed packaging materials of superior quality are the end point of our production efforts. I am sorry to say that in my opinion this is not strictly the case. We have in recent years in the United States, I think, too often sacrificed the quality of our product on the altar of higher production in an effort to gain competitive advantage in the market place. Within the last year, the general business climate has tended to reverse this trend, however, and the quality of our product has become today the byword. I do not mean to infer from all of this that progress has not been made in the field of product quality, for it most assuredly has, but I do not think the rate of improvement has been as rapid as it might have been or as it should have been in order to insure the continued use of kraft paper in increasing quantities in the packaging field.

Why Multi-Wall Market Decreasing

There are to be sure a number of other contributing causes to the position in which we find ourselves. Plastics in the form of both films and foams have made substantial inroads into our markets. This trend will continue, but unfortunately our industry has not had its head in the sand, and marriages of kraft paper with these products will produce still better packages in the future. The multi-wall sack producers are among the leaders in these developments.

As I mentioned previously, the use of multi-wall sacks has been substantially decreased in recent years primarily because of bulk shipments in commodities such as cement and flour, and the advent of liquid fertilizers. These segments of the market are large and are now probably irrecoverable. But with the coming of the plastic materials, new vistas are being opened up to the multi-wall sacks to meet a variety of packaging needs which appear on the market regularly. Extensible grades are playing and will continue to play a major role in these developments.

I realize that this entire presentation has been but a cursory examination of kraft paper manufacture in the United States, but I trust that this summary constitutes a reasonable analysis of our industry and that something which I may have said will at least provoke a question or two in your minds for further investigation or discussion. I am of the firm conviction that the future holds for the kraft paper manufacturer more opportunities and more challenges than have ever been ours in the past, and I confidently expect that the kraft paper industry will meet the challenge of tomorrow with the same enthusiasm and with the same aggressiveness that has characterized our industry in the past.

Presented at Clupak, Inc., Technical Meeting, Sea Island, Ga., June 12 & 13, 1961.

A Lockwood Best Seller . . .

Twenty-seven valued articles all together . . . each written by an authority . . . offering solutions to various problems faced by the Industry's Orphan —FINISHING . . . comprising the initial phases of PAPER TRADE JOURNAL's exclusive "Operation Finishing." Order your personal copy TODAY! Price, only . . . $2.50 per copy

SOMETHING CAN BE DONE ABOUT

PAPER AND BOARD FINISHING

LOCKWOOD TRADE JOURNAL CO., Inc.
49 West 45th Street, New York 36, N. Y.

Please send me ..... copies of SOMETHING *CAN* BE DONE ABOUT PAPER AND BOARD FINISHING at $2.50 each, postage paid.

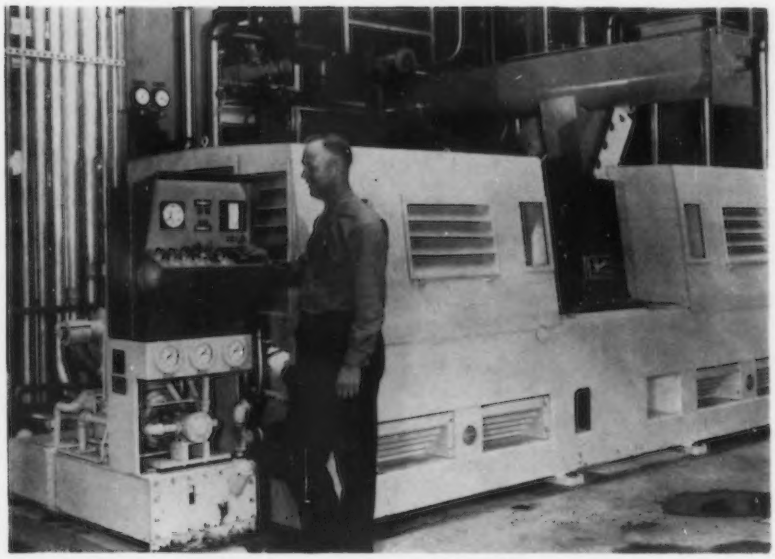
☐ Bill Company ☐ Check Enclosed

Name .....

Street ..... *City and State* .....

World's Largest Pulp Refiner — What? Why? and How?

A behind the scenes question and answer interview with the following Bauer Bros. Co. personnel, who helped develop a new giant disk refiner: E. L. Rastatter, V-P Sales; J. E. Irvine, V-P Engineering; D. A. Borden, manager, Refiner Sales; and D. P. Michel, chief electrical engineer.



One of the Bauer 480 refiners in operation in a West Coast pulp mill. Lloyd Longino of Bauer checks controls. Two mills now have 480's installed.

Q. What is the 480?

A. (Rastatter) The 480 is The Bauer Bros. Co's newest double revolving disk refiner. In it the pulp is refined in the small, controllable gap between 48" diameter counter-rotating disks, in a method similar to the smaller double revolving disk refiners. However, similarity of such previous refiners and the 480 ends at about that point. The 480 has larger disks (previous largest — 40"), much higher differential rim speeds, and many new design and engineering innovations.

For instance, the large diameter disks enable us to greatly increase the connected horsepower and apply it more efficiently between the disks. The refiner is designed for maximum power application of two 1500 h.p. motors, one on each disk, giving a possible total of 3,000 installed h.p. per machine.

Q. What is the reason for larger diameter disks and more power?

A. (Rastatter) Recent developments have indicated that double revolving disk refiners can produce a good groundwood pulp directly from untreated chips using the same species of wood normally ground on a pulp stone. Since power per ton requirements at present are about the same as those for pulp from grinders, a larger refiner is a necessity unless existing mills have room for many of the present size, less powerful refiners.

So, the bigger, more powerful refiner actually is a space saver. Likewise, it reduces labor costs since only one man is required instead of several as required for many units.

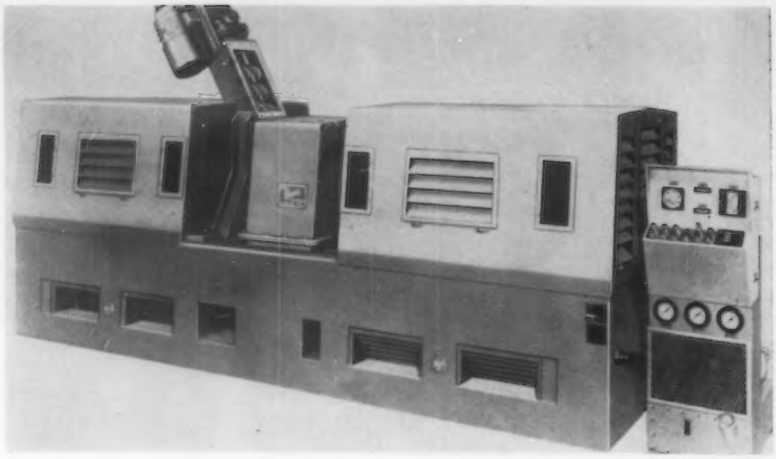
Q. But why make groundwood from chips with a refiner if there is no power saving?

A. (Rastatter) Because one of the most important benefits derived from the 480 is the improvement in the quality of the groundwood it produces. For instance, refiner groundwood has a higher mullen and considerably higher tear strength. In addition, the quality of the groundwood produced by the refiner is more uniform since it is not dependent on the art and skill of the operator, or upon which side of the bed he got of that morning.

Another thing, you can't overlook the economies and improved quality control possible with a refiner groundwood mill which can be completely automated and remotely operated from a central control room. The machine is not intended for use on relatively easy-to-refine pulps which might require a tonnage of 300 T/D to fully utilize the installed power.

Q. What, then, are the specific intended applications of the 480?

A. (Borden) The use of this refiner will be in the field of groundwood from chips, as Ed (Rastatter) has mentioned, and in other high yield applications like the cold



The Bauer No. 480 refiner presents functional, modern appearance. All controls are centralized in unit at right which shows motor load, bearing temperature, hydraulic load and similar operating data.

soda process. The 480 can be used wherever large power requirements per ton of stock produced are encountered in mills with a large capacity.

Q. What experience led to the development of the 480?

A. (Irvine) Our work in recent cold soda applications led us to believe that high energy input machines were entirely practical and the experience gained in these applications was used extensively.

Q. Earlier you mentioned "Many engineering innovations". What are some of these innovations?

A. (Irvine) The principal one, and possibly the greatest difference between this machine and other double disc refiners, is that we have used integral motors in the 480. These were specially developed by Bauer and the motor manufacturers. There are of course.

It is interesting to note that the integral motors are the self ventilating type. The unique integral design in which the shaft, rotor and disk are one unit adds extra strength and ruggedness.

Q. You mentioned ease of operation a few items back. How can you illustrate this feature?

A. (Michel) One feature which operators will like concerns plate changing. This has been simplified, since the design of the machine allows the heads to move 6 inches apart. Also, the case is split in two parts the top half of which can be easily removed for plate changes. An inspection door in the case allows instant checking of the plates by the operator.
(Irvine) It might be interesting to insert at this time that the inspection doors in the case which give a ready access to the plates are real labor savers and in previous machines it has been necessary to remove at least one quarter of the case to get at the plates. In the 480 it was found that one quarter of the case would weigh over 600 lbs. . . . obviously not a job for one or even two men.

Q. How about control?

A. (Michel) Our goal in designing the controls for the 480 was to come up with the simplest and most efficient system possible. After checking several mechanical means of control they were discarded as being too cumbersome and inefficient. Therefore an electric hydraulic positioning control system was designed and installed.
(Irvine) I think we should mention here also that mechanical control of positioning of the disk proved to be too expensive of an item on a machine of this size. In addition, a mechanical control system is very difficult to tie in with an automatic or remote control system, so we decided on the electro hydraulic control system which allows one operator to handle several machines in one installation in large mills. This, of course, reflects an important labor saving to the management of the mill.

Q. Did the application of 3,000 h.p. add any problems in engineering the 480?

A. (Irvine) Well, let's say that rigidity of the machine was one of the prime considerations we had in mind all through development of the 480. Here is a unit to which we were going to apply 3,000 h.p. That power had to be properly applied. The base and the disks were very carefully designed to hold all parts in line even under the heaviest load conditions. This, of course, required a considerable amount of detailed calculation. Fortunately, time required for this was materially reduced by the use of our IBM 610 computer.
(Rastatter) I want to point out that the base of the 480 is a one-piece steel weldment assuring maximum rigidity. Also, the base is completely water cooled in order to eliminate any possible distortion due to heat build-up in the refining chamber. Incidentally, the refining chamber is made of solid 316 stainless steel.
(Borden) To eliminate corrosion problems, all parts of the refiner which come in contact with pulp are constructed of stainless steel. The 48-inch rotating disks are solid stainless steel.

Q. One more question regarding operation. Does this new refiner require special plates?

A. (Rastatter) No. The same design of plates used so successfully in the 40-inch dia. refiners have been increased in size and are working very well.

Q. Does the feeding of the refiner the size of the 480 pose a special problem?

A. (Irvine) There is no special problem involved in the feeding but one of the prime considerations in the development of this machine was the passage of stock into the unit in the proper amount. The entry of water into the refiner was also carefully studied. As a result of this re-

search, the 480 is equipped with a double screw pressure feeder.

Q. Has this machine been applied in the industry yet, and if so, what are the results to date?

A. (Bordon) The 480 has now compiled a record of successful operation in producing groundwood directly from raw chips in two large west coast mills. The refiner is presently producing pulp in a range from 80 to 160 Canadian standard freeness and is easily controlable within this range by varying the power input into the stock. No difficulty was involved in machine operation nor was there any problem of paper quality. One of the installations was started up in June of 1960. The second in July of 1961, so this machine is really field proven.

Q. Are we correct in assuming that the engineering innovations of the 480 will appear in Bauer refiners in the future?

A. (Rastatter) Yes. The engineering and design features of the 480, now that they have been proven in actual mill use, are already being incorporated in a whole new series of refiners in various sizes and power ratings. The accessibility provided by this design will be attractive to all refiner users. The freedom this design offers in assembling motors in the refiner will enable Bauer to offer even wider range of power than in standard machines previously offered.

Q. Were any particular problems encountered in the installation of the machine?

A. (Irvine) No particular problems were reported in the installation of the first 480. The foundations for a refiner of the 480 type, which operates at the speed of 1200 r.p.m., should be carefully studied by structural engineers, mill personnel and also by the engineers installing the unit.

IMPORTANT: EDITOR'S NOTE

The editors believe that the installations referred to are at Crown Zellerbach Corp., West Lynn, Oregon and Publisher's Paper Co., Oregon City, Ore. Also that the mill installation photo is from the latter mill.

PJT NEW LITERATURE

Speed Changers

Describes design features of the Vari-Tex speed changer provide dependable low cost variable speed. Tells how a choice of mechanical, electrical and pneumatic control options can afford a wide degree of versatility in measuring process or product variables by means of standard sensing and signalling devices. Bulletins 51B9061B and 51B1042. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Split-Case Centrifugal Pumps

Describes complete line, single-stage, double suction, and horizontal. Contains sectional photos, selection charts, dimensional data, limitations chart, and engineers — architects specifications. Capacities range to 6000 g.p.m. heads to 380 ft. Bulletin 105C. 8 pp. Aurora Pump Div., The New York Air Brake Co., Aurora, Ill.

Kurs and Ross Latest Bulletin

Covers various types of testing, quality control, research-development and pilot plant equipment. Sales Bulletin 9-61, Kurs and Ross Co., 377 Frelinghuysen Ave., Newark 14, N. J.

Pick-A-Pump Catalog

Contains engineering data for selection of centrifugal, axial or mixed flow pumps. Includes parts listings and prices along with a 64-page yellow reference section carrying data relating to pumps, hydraulic design, and general tables and charts frequently required in the application of moving liquids. Catalog. 1008 pp. Advertising Dept. Allis-Chalmers, Box 512, Milwaukee 1, Wis.

Top Entry Ball Valves

The Lunkenheimer Type 316 Stainless Steel Ball Valves, designed for corrosive fluids, gases, and general corrosive services is described and detailed in a full-color catalog sheet. Describes the operation of the valve, shows cutaway views, gives pressure ratings, covers specific design and dimensions, reports on applications and advantages. Circular 612 Lunkenheimer Co., Cincinnati 14, Ohio.

"We're running off an order of ticker tape"

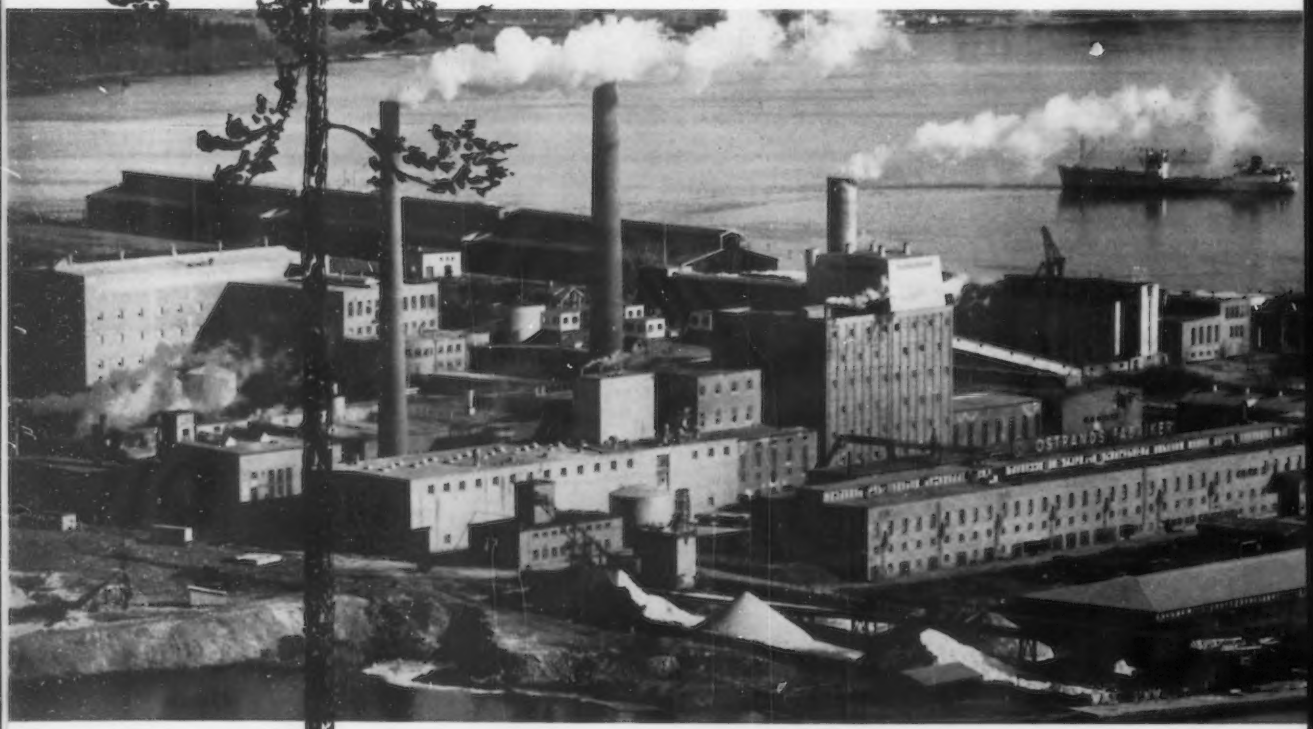
a tree grows slow in Sweden

Slow-growing Swedish trees produce long, strong fibers... the kind that make the best pulp. Starting with this superior raw material, SCA uses exacting controls to produce pulps of all grades noted all over the world for their consistent excellence. Now SCA introduces

Ostrand W 91

a chlorine dioxide bleached kraft pulp with high brightness, controlled cleanliness, combined with outstanding strength properties. For information or service, call on our experienced sales force with offices located throughout the world to serve your needs.

Ostrand Sulphate Mill



SVENSKA CELLULOSA AB

(The Swedish Cellulose Company)

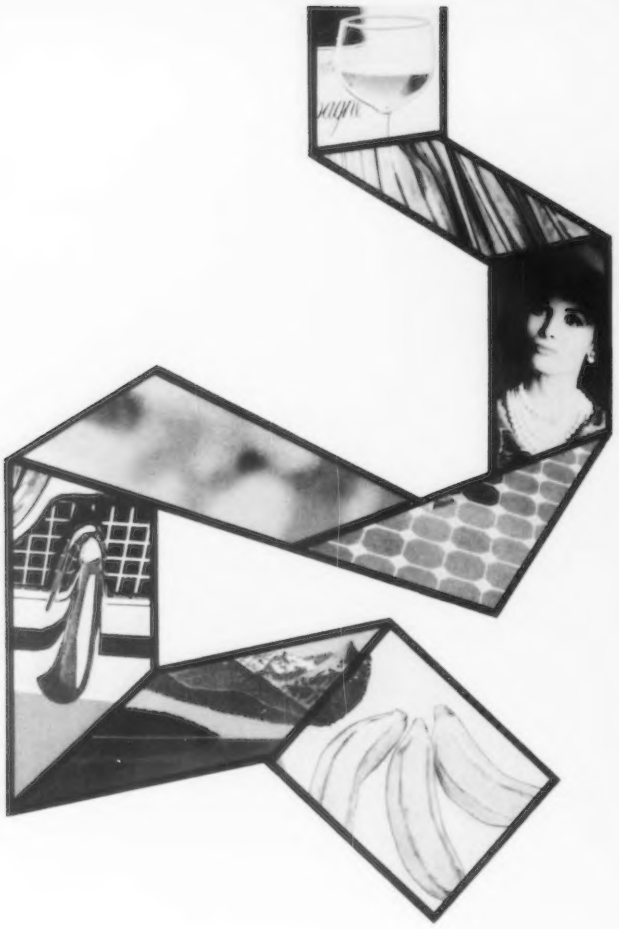
SUNDSVALL, SWEDEN

Exclusive U. S. Sales Representative: Cellulose Sales Company, 250 Park Avenue, New York

things look better...

with DYLEX® latices in the paper coating

With Koppers new series of latices in your coatings, paper has unexcelled printability. Clear, sharp, true-to-life reproductions. Turn the page and find out why!



things look better...

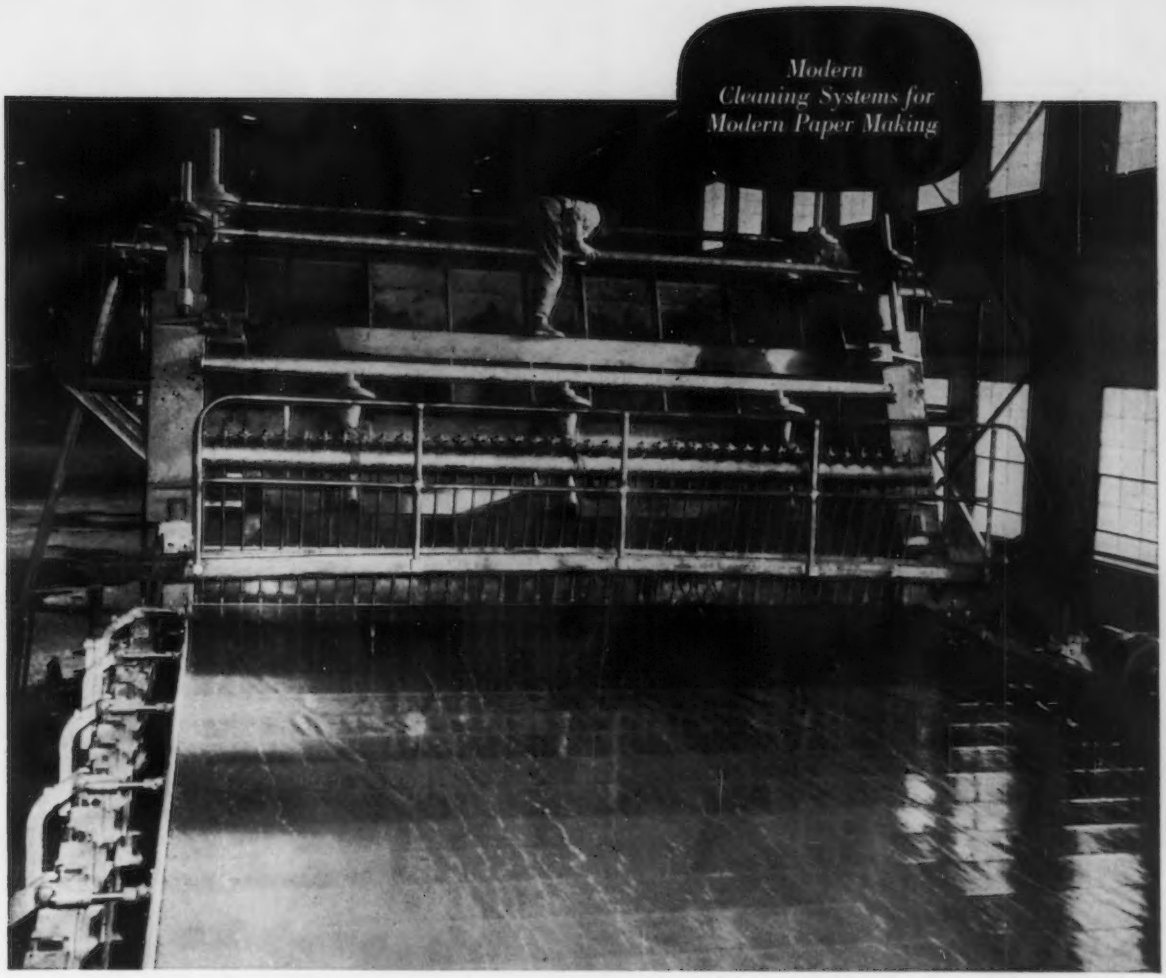
with DYLEX latices in paper coatings because they coat *smoothly;* they won't lump or streak . . . papers print clearly without defects. Type and color illustrations show off with remarkable sharpness. DYLEX latices have excellent mechanical stability and they *blend* perfectly with other coating additives. They're less foamy, have less odor, are easy to apply, and they strengthen coated papers for today's modern high-speed printing presses.

Koppers produces DYLEX K-52 for conventional clay coatings; DYLEX K-54 for superior adhesive qualities; and DYLEX K-85 for specialty papers requiring extremely high gloss. For more detailed information on how these latices can make smoother, stronger paperboard coatings for you, write Koppers Company, Inc., Plastics Division, Dept. 165, Pittsburgh 19, Pennsylvania.

KOPPERS PLASTICS

Fabric and fashion illustrations courtesy of E. I. du Pont de Nemours & Co., Inc.

This insert is printed on Polar Offset Enamel—manufactured by Oxford Paper Company, a prominent user of DYLEX K-54 latex for paper coating.



Fourdrinier wire life increased 40% by mechanized continuous cleaning

Changing Fourdrinier wires about every 20 days cost one mill over $13,000 yearly.

Mechanizing the wire cleaning and using Oakite Compound 85 made a big difference. Now, the wires average 28 days—a 40% increase in life. Savings: about $5,000 yearly in wire costs alone, *plus* the time and work saved with fewer changeovers.

How it was done. On recommendation of the Oakite man, the mill adopted an in-place cleaning system using Oakite Compound 85. The wire is cleaned without manual brushing. Results: wire is thoroughly cleaned. It's replaced only because it fails mechanically, never because of cleaning damage. In fact, the wire supplier remarked he'd never seen wire returned in such good shape.

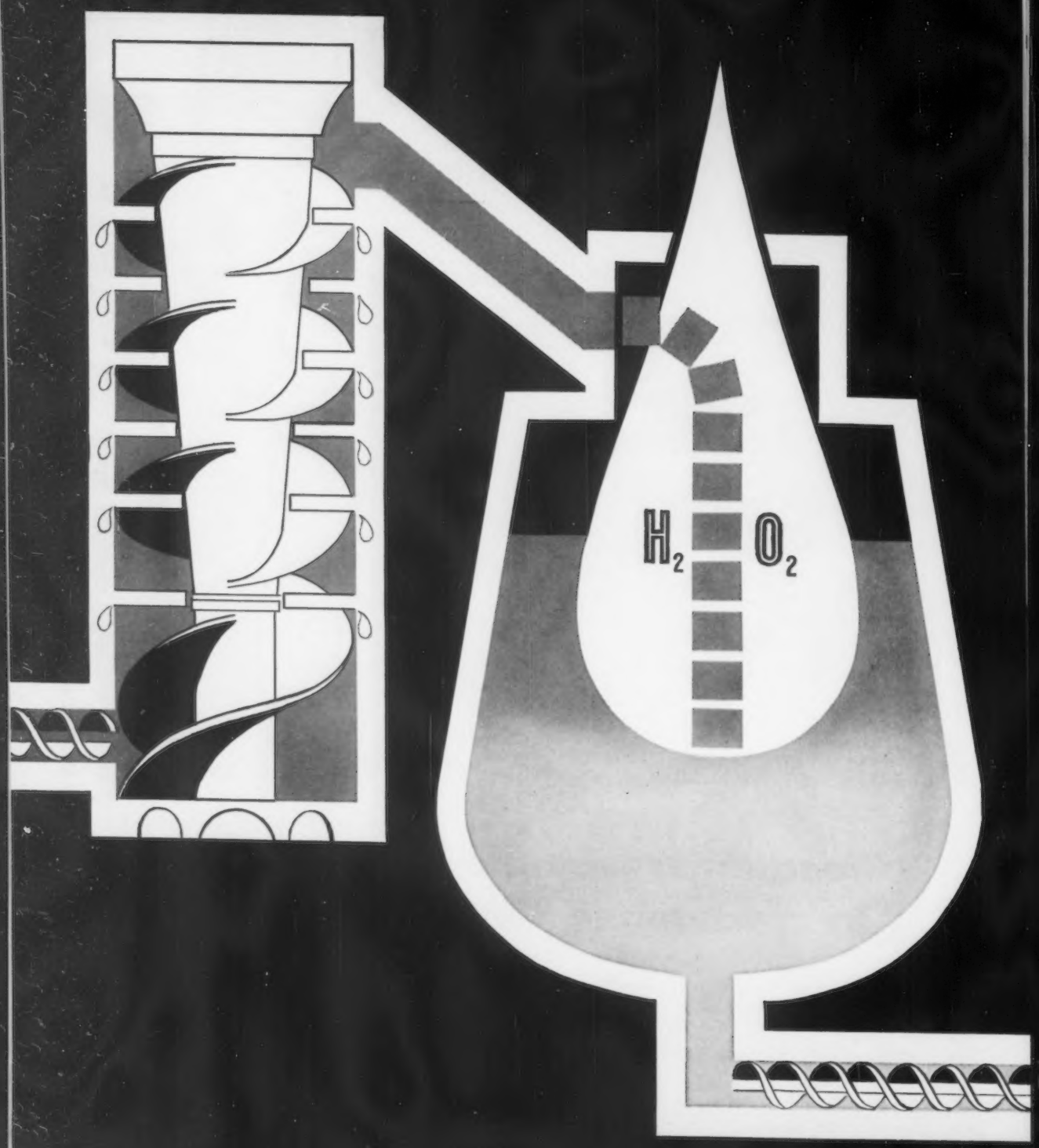
How you can benefit. Ask your Oakite man to help you cut cleaning costs, too. He's well qualified to help you develop time-and-money-saving cleaning *systems.*

Call him in; or write for Bulletin B-4591. Oakite Products, Inc., 68 Rector Street, New York 6, New York.

Technical Service Representatives in Principal Cities of U. S. and Canada
Export Division Cable Address: Oakite

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE
in our 52nd year

Modern Cleaning Systems Keep Downtime DOWN



BECCO
HYDROGEN PEROXIDE

HIGH-DENSITY GROUNDWOOD BLEACHING SUCCESS REPORTED AT ST. REGIS PAPER COMPANY

NEW BECCO SINGLE-STAGE SYSTEM OFFERS HIGHER PULP BRIGHTNESS AT LOWER PEROXIDE COSTS

Since March 1960, St. Regis Paper Company has been bleaching groundwood pulp at a 25% consistency with a new single-stage bleaching process developed by Becco. Hydrogen peroxide bleaching solutions are consistently yielding brightness levels of 75-78 from unbleached pulp fed into the system at a brightness level of 60.

In the St. Regis, Deferiet, N. Y., operation a newly designed vertical screw press (developed by FMC Corporation's Canning Machinery Division) dewaters the pulp, permitting the most efficient use of the peroxide.

Full details of the St. Regis operation will be presented in Chicago in a joint report by St. Regis and FMC at the T. A. P. P. I. meetings September 19-20-21.

The results at St. Regis, Deferiet, clearly demonstrate the success of commercial high-density groundwood bleaching. If you are looking for higher brightness in your groundwood bleaching operation, contact Becco for details on this proven system. Address your inquiries to: Dept. PTJ-61-23; Becco Chemical Division, FMC Corporation, 161 East 42nd Street, New York 17, New York.

fmc CORPORATION®

BECCO CHEMICAL DIVISION

FMC CORPORATION

Fox River Paper Corporation — Fine Papers

Appleton, Wisconsin — April 4, 1961

Mr. Huber Newcomb
The Manchester Machine Co.
Middletown, Ohio

Dear Mr. Newcomb:

Your request for information regarding the operation of our No. 5 Machine press section has been taken from our records and represents a comparison of 9 months operation of the old press section with 9 months operation of the new press.

1. Steam cost savings per ton of paper - Decrease of 9.16%.

2. Felt cost per ton of paper:
   a) First Press - Decrease of 35.0%
   b) Second Press - Decrease of 21.0%.

3. Production (based on pounds) - Increase of 5.6%.

4. Downtime (based on cost) - Decrease of 19.6%.

The start-up of the new press section presented no problem, and, outside of a few minor changes, is operating exceptionally well. The quality of the paper has improved and is more uniform. The control that we have on the operating pressures of the presses has been a great help in the grades that we manufacture.

We have been able to increase the speed on certain grades, but for most of our grades we have maintained the same speeds due to other machine operating conditions. Therefore, the improvement of the machine operation, steam costs, felt costs and production are due entirely to the press section.

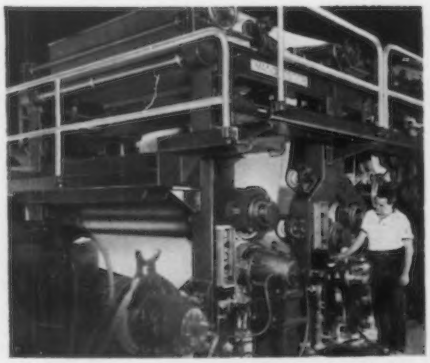
If you should need additional information, please contact us.

Very truly yours,
Arnold G. Beaman
A. G. Beaman
Superintendent

AGB:jn

MANCHESTER PRESS SECTION CUTS COSTS FOR FOX RIVER

You get more water removal, improved quality and lower operating costs with a Manchester press section. In his letter, above, Superintendent A. G. Beaman reports on the results of a Manchester installation at the Appleton, Wisconsin mill of The Fox River Paper Corporation. Manchester's successful experience with presses and press sections assures similar savings and production advantages for you. Do as other industry leaders are doing — when you plan your next press section, call in the man from Manchester. Write: *The Manchester Machine Company, Middletown, Ohio.*



Manchester suction press section installed on No. 5 machine at Appleton, Wisconsin mill of Fox River Paper Corporation.

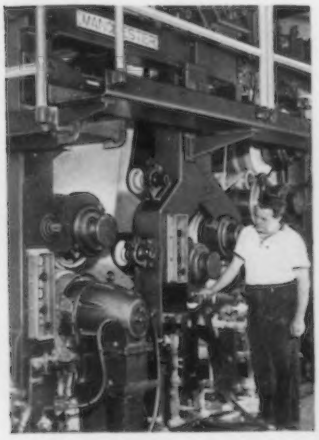
Manchester... profit builders for papermakers

THE MANCHESTER MACHINE COMPANY

MANCHESTER
PRESS SECTIONS
SAVE MONEY
FOR THESE
AND OTHER
FIRMS, TOO

- ARMSTRONG CORK COMPANY
- BESTWALL GYPSUM COMPANY
- THE BEVERIDGE PAPER COMPANY
- CROCKER, BURBANK & CO. ASS'CN
- HAMILTON PAPER COMPANY
- NICOLET INDUSTRIES, INC.
- THE SORG PAPER COMPANY
- THE STEVENS PAPER MILLS, INC.
- WEST VIRGINIA PULP AND PAPER
- WISCONSIN TISSUE MILLS
- FIBREBOARD PAPER PRODUCTS CORPORATION

THE MANCHESTER
MACHINE COMPANY



PJT NEW EQUIPMENT & SUPPLIES

World's Biggest Refiner Has Twin 4 Ft. Disks

The No. 480 double revolving disk refiner, designed and built by The Bauer Bros. Co., Springfield, O., is said to be the largest refiner in the world, and has been proven in commercial use. Two of the big machines are now being used in two different major newsprint mills on the West Coast. The first mill has been using the No. 480 since early June, 1960, while the second mill started its unit in July of this year.

According to a Bauer spokesman, the 480 refiner with its two 48 inch diameter disks is designed specifically for high energy input applications. These include groundwood from untreated chips, cold soda and other chemi-mechanical pulping processes. However, design and engineering features of the field proven 480 are being incorporated in a complete series of Bauer double revolving disk refiners. Models will be available in several sizes and several power ratings, to meet various production requirements. All of these refiners will have the same modern identifying exterior appearance of the 480, all will have integrally mounted motors.

Each 2,000 lb. stainless steel disk is driven by a built-in motor rated at up to 1500 h.p., giving the unit a total applied power rating of up to 3,000 h.p. Operating speed is 1200 r.p.m. The integral motors are a self ventilated type.

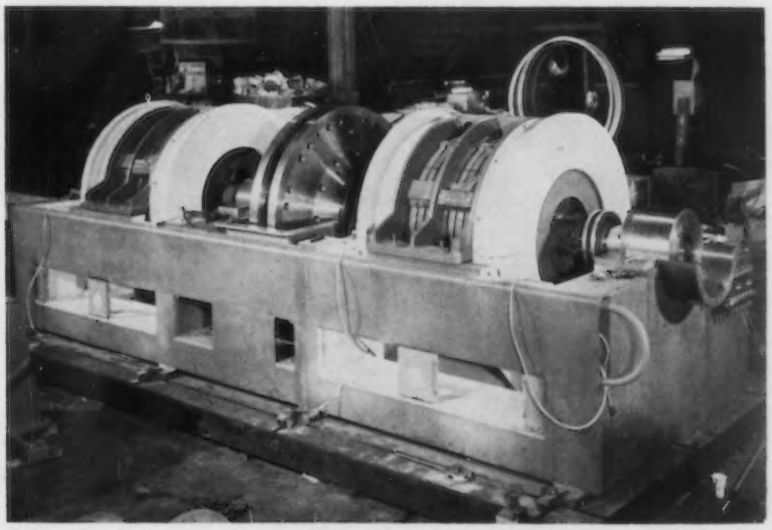
The two drive motors are housed in squared, louvred enclosures. Inspection ports in the white and illuminated motor wells provide full view of moving parts and oil flow while the refiner is in action. Plates can be inspected through a small door in the case of the machine—rather than by removing a section of the case.

Simplified electrical-hydraulic controls mounted in a centralized control unit handle stop-start, positioning of disks, etc. These controls can be automated or remoted. One operator can handle several machines from a single control panel.

A twin screw feeder assures proper flow of chips into the refiner. The rigid base of the giant 21 ton machine is completely water cooled, to prevent any possibility of thermal distortion. All parts in contact with pulp are of stainless steel construction.

Another major advantage of the 480 is that, in many cases, it allows use of wood of nearly any species or size capable of producing chips. Slabs and edgings of almost any size, even shavings and sawdust, can be utilized for production, it is claimed.

(Continued on page 50)



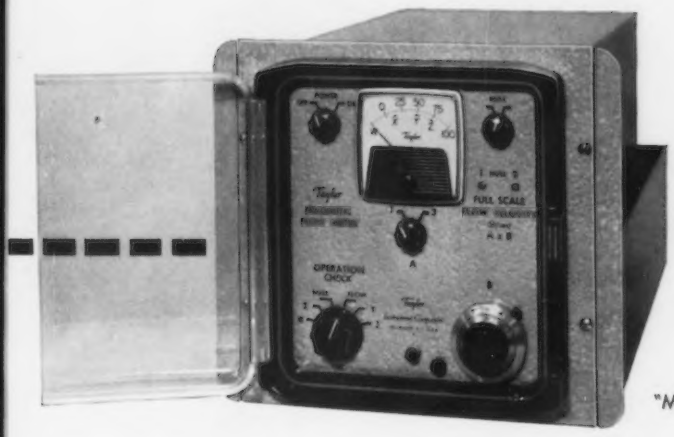
712NE
"MAG-PIPE" Sensing Head

Taylor presents a **MAGNETIC**

OUTSTANDING FEATURES

- High accuracy—½% of full scale on most ranges.
- Full scale velocities as low as ½ ft./sec., at only slightly reduced accuracy.
- Conductivity range—as low as distilled water.
- Rangeability—½ to 30 ft./sec. full scale calibration, continuous vernier adjustment.
- Amplifier—solid state.
- Ideally suited for long transmission runs to a central control panel.
- Output signal—1-5 ma DC into any load from 0-3000 ohms. (Electro-Pneumatic Transducer or TRANSCOPE Electronic Control System).

Taylor Instruments



717TE
"MAG-PIPE" Transmitter

FLOWMETER TRANSMITTER WITH 1/2% ACCURACY

The new Taylor "MAG-PIPE" Magnetic Flowmeter Transmitter is a high quality, high performance transmitter with an output signal of 1-5 ma suitable for transmission over long distances. It can therefore be used with miniature receivers and controllers in central control rooms.

It is designed to measure flow of fluids with an electrical conductivity as low as that of distilled water. It is ideally suited for very low flows, viscous liquids and liquids containing suspended solids, since the flow is not in any way restricted by the primary element.

The "MAG-PIPE" sensing head is mounted in the flow line. It comprises a flow tube, an AC magnetic circuit and two electrodes. The sensing head housing is "hose-down proof" (explosion-proofing optional), and has Van Stone type flanges for easier, faster installation.

The transmitter employs *solid state* components, being fully transistorized for long-term reliability. It is standard in fixed-range form, in which case calibration is factory set at the desired range. Optionally available with a full-scale vernier adjustment on two ranges. A built-in output meter doubles as a circuit checking device.

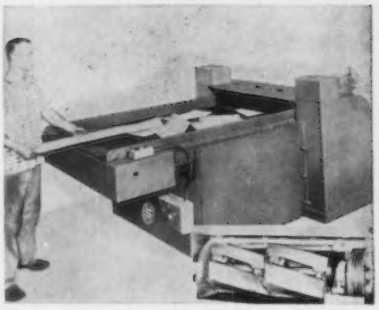
The "MAG-PIPE" Flowmeter Transmitter is in production. Consult with us on your difficult flow measurement problems. See your Taylor Field Engineer or write for **Bulletin 98418.** Taylor Instrument Companies, Rochester, N.Y., and Toronto, Ontario.

MEAN ACCURACY FIRST

(Continued from page 47)

Shredding Machines Handle Broke, Waste Paper

This equipment is designed for size reduction of large flat shapes such as sheets and bags of paper as well as corrugated broke, trim and similar materials. Two standard sizes of machines are available. Model 40 provides a feed opening of 39 inches, and Model 60 is 57 inches wide. They can produce shreds in widths of ¼ to 1 inch, and are suitable for continuous or intermittent operation at rates from two to four tons per hour, depending upon width of shred and type of material. Both machines are furnished with integral feed conveyor, and can be equipped for automatic removal of the shredded material by air conveyor.

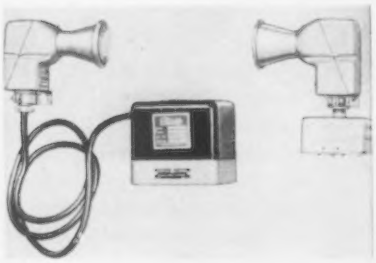


The cutting head is designed as a complete unit in itself. This provides for rigidity in operation, good accessibility for sharpening knives, and less vibration. Actual cutting is accomplished by shearing the material on a bevel. It is claimed that this cutting principle requires minimum power. Industrial Shredder & Cutter Co., Salem, Ohio.

Prevents Overheating of Dryers During Paper Break

A device to prevent overheating of paper machine dryers during breaks in paper is offered by Stickle Steam Specialties Co.

Known as the Automatic Shift-Break Detector, it employs a photo electric eye aimed at the sheet passing over the dryers. The instant a break occurs, steam flow into the dryers is automatically reduced to a preset level, as control is shifted from "automatic" to "pressure".



Constant pressure is maintained until the sheet is brought back over the machine. Then, control is automatically returned to its former "automatic" status and normal steam flow is resumed.

The detector is designed for use with any Stickle pneumatic moisture control system. Breaks are signaled in the control cabinet by a red light. A horn or bell may be used with the detector for indicating wet end breaks. Stickle Steam Specialties Co., 2215 Valley Ave., Indianapolis 18, Ind.

QUALITY CHIP PRODUCTION

...with MURCO Chipper and Rechipper in Weston Paper & Pulp Mfg. Co.

To meet their requirements for quality chip production in their simplified system for handling wood Weston Paper & Pulp Manufacturing Co. at its Terre Haute plant selected MURCO Pulpwood Chipper and Rechipper (described in detail in the panel at the right).

The MURCO Chipper, like all MURCO Pulpwood Chippers, is designed to include the desirable features for today's production requirements...backed by years of constant development and the incorporation of various features that contribute to outstanding chipper performance to produce more and better chips with less sawdust, fewer slivers and freedom from repairs.

MURCO Rechipper is a real money saving equipment for mill operators looking for quality in chip production . . . as in the Weston Paper & Pulp Manufacturing Company installation, maximum quality chip production results.

MURCO Chipper
Illustrated above is the MURCO 90" 10-knife Chipper, with a chip production capacity of 25 to 35 cords an hour of ⅝" chips . . . operates at 400 rpm with V-belt drive 500 hp, 720 rpm motor. The chipper has a blower housing for blowing chips to a cyclone . . . 19" diameter spout with a pneumatically operated, linked cover for raising to release oversize logs or jams. A disc brake assembly stops the chipper when power is cut off, when discharge line may be plugged by logs.

MURCO Rechipper
Illustrated is the MURCO 40" 6-knife Rechipper, to reclaim oversize rejects . . . driven by a 15 hp, 900 rpm direct connected motor. Discharged chips are blown to the cyclone for rescreening . . . accepted chips discharge onto a belt conveyor and transferred to chip storage silo.

WRITE for complete story on MURCO Pulpwood Chippers and MURCO Rechippers.

MURCO

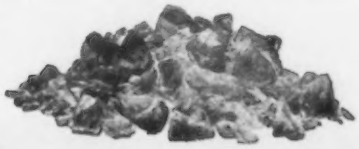
D. J. MURRAY MANUFACTURING CO.
Manufacturers Since 1883 WAUSAU, WISCONSIN

GET THIS NEW 24-PAGE PICCOPALE CATALOG!

Low cost and high bulking factors add immeasurable profits and versatility to the benefits of using this synthetic hydrocarbon resin. For instance, data included in this publication show that PICCOPALE provides two extra gallons of pure resin per 100 pounds, compared to another similar petroleum resin!

To help you explore the savings involved in using PICCOPALE resin, Picco offers this new catalog. It provides data on physical properties, storage and handling, applications, and detailed information on the various reactions and forms of resin utilized in many processes.

These processes include paint and varnish formulating, textile processing, paper converting, rubber compounding, floor covering manufacture, adhesive compounding, agricultural formulating, wax and rosin modification, blending with polyethylene and use in printing inks. Descriptions are also provided which indicate the usage of PICCOPALE in cement curing compounds, as an anti-dust coating, in waterproof packaging, and concrete curing.



Piccopale Resin is a neutral petroleum hydrocarbon resin which features low cost, light color, excellent compatibility and solubility, and extremely high water and moisture resistance.

PENNSYLVANIA INDUSTRIAL CHEMICAL CORPORATION
122 STATE STREET, CLAIRTON, PENNSYLVANIA

Return this coupon for your free copy of
NEW PICCOPALE CATALOG

Pennsylvania Industrial Chemical Corporation
122 State Street • Clairton, Pennsylvania
Please send me a copy of the new Piccopale catalog.

Name_____ Position_____

Company_____

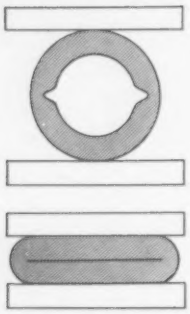
Street_____

City_____ Zone___ State_____

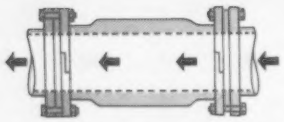
Description of application_____

Massco-Grigsby PINCH VALVES

"Hinged" sleeve permits tight closing reduces wear.

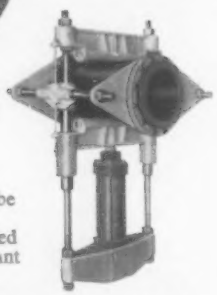


Recesses in sleeve serve as "hinges" during compression.



Unobstructed flow eliminates high friction loss; and there are no metal parts in contact with pulp or liquid.

Several types of closing mechanisms are available, from handwheel to motorized.



Automated Systems.
Completely automatic systems may be coordinated and interlocked with other plant equipment.

1" to 14" I.D.; pressures to 150 psi; temperatures to 200° F.

WRITE FOR CATALOG 609

MINE AND SMELTER SUPPLY CO.

3800 RACE STREET • DENVER, COLORADO
OFFICES AND AGENTS IN PRINCIPAL CITIES

NEWS OF SUPPLIERS

Glidden Co. Chemicals Group has appointed Louis J. DeChellis as a sales representative in the Texas territory for the Pigments and Color Department.

In this capacity with Glidden, Mr. DeChellis will be responsible for developing sales of Glidden titanium dioxide, lithopone, color ingredients and copper pigments in the entire state of Texas.

(Continued on page 56)

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Aug. 5	Aug. 12	Aug. 19	Aug. 26	Sept. 2
1961	88.6r	90.6r	91.5r	91.4r	90.3
	Aug. 6	Aug. 13	Aug. 20	Aug. 27	Sept. 3
1960	89.0	91.7	93.0	94.4	90.1

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.2	91.2	91.6	91.1	78.6‡	90.5‡					

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	91.6	95.7	98.8	91.7	86.4	92.0	94.5	89.1
Year Average	91.6	96.2	97.9	90.4	87.0	92.0	92.7	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Aug. 5	Aug. 12	Aug. 19	Aug. 26	Sept. 2
1961	94	94	94	95	96
	Aug. 6	Aug. 13	Aug. 20	Aug. 27	Sept. 3
1960	94	92	92	92	94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	91	91	91	94	78	95†					

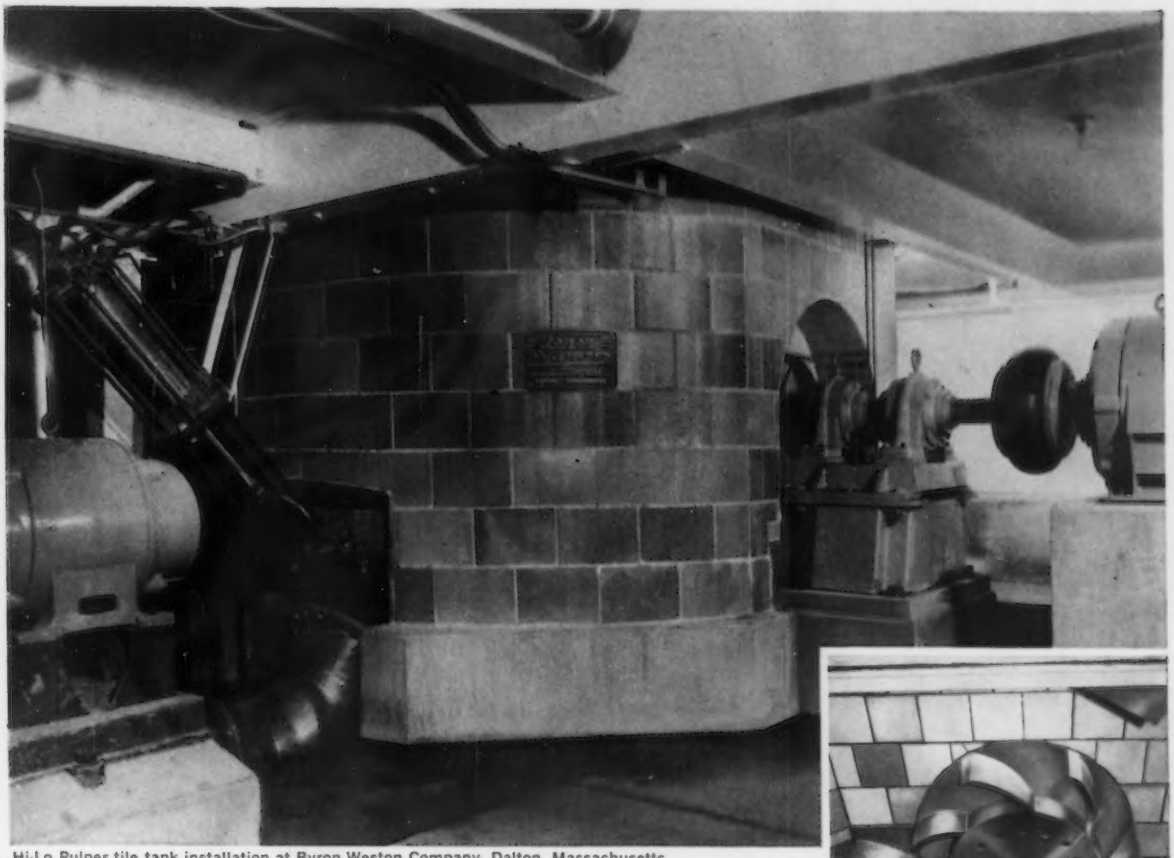
† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING August 26, 1961	WEEK ENDING Sept. 2, 1961	CUMULATIVE TO DATE January 1, 1961 to September 2, 1961
% Activity	95%	96%	90%
Total	341,687	337,806	10,924,421
Containerboard—Domestic Use	178,916	176,993	5,570,035
Liner	122,315	118,877	3,721,034
Corrugating Material	51,785	52,874	1,681,526
Chip & Filler Board	4,816	5,242	167,475
Boxboard—Domestic Use	104,142	98,660	3,324,680
Folding	61,651	59,233	1,986,001
Set-Up	10,234	10,872	318,536
Special Food Board	32,257	28,495	1,020,143
Other Paperboard	58,629	62,213	2,029,706
Containerboard Type	27,053	28,078	978,980
Boxboard Type	31,576	34,135	1,050,726
Total Orders			
Received	343,055	342,341	
Unfilled End of Week	513,632	521,301	

Tile Tank Hi-Lo Pulper at Byron Weston Company

SOLVES LOW HEADROOM PROBLEM



Hi-Lo Pulper tile tank installation at Byron Weston Company, Dalton, Massachusetts.

The low speed rotor, with large curved blades, provides quick breaking and maximum circulation, forcing stock across the tank to the high speed rotor for defibering.

In January of 1960 Byron Weston came to Jones with a special pulping problem. To produce their high grade cotton fibre papers Byron Weston uses a wide variety of hard-to-defibre furnish. They needed a pulper that could handle this furnish efficiently, but . . . here was the problem . . . they also needed a pulper which could be installed in 10′ headroom and still handle 35 tons per days.

Jones engineers solved both problems effectively with a specially designed tile tank Hi-Lo Pulper. It meets the limited headroom requirements without sacrificing the proven efficiency of the standard height stainless steel tank Hi-Lo.

Designed for batch or continuous pulping with low power consumption, the Jones Hi-Lo Pulper can be installed in areas where the headroom is as low as 6½′.

The notched blades of the high speed rotor, turning at an average tip speed of 7600′ per minute, project only ¼″ and use power most efficiently for defibering. The blades, held securely by duroid wedges, can be easily replaced.

E. D. JONES CORP. member BELOIT group PITTSFIELD, MASS.

Jones

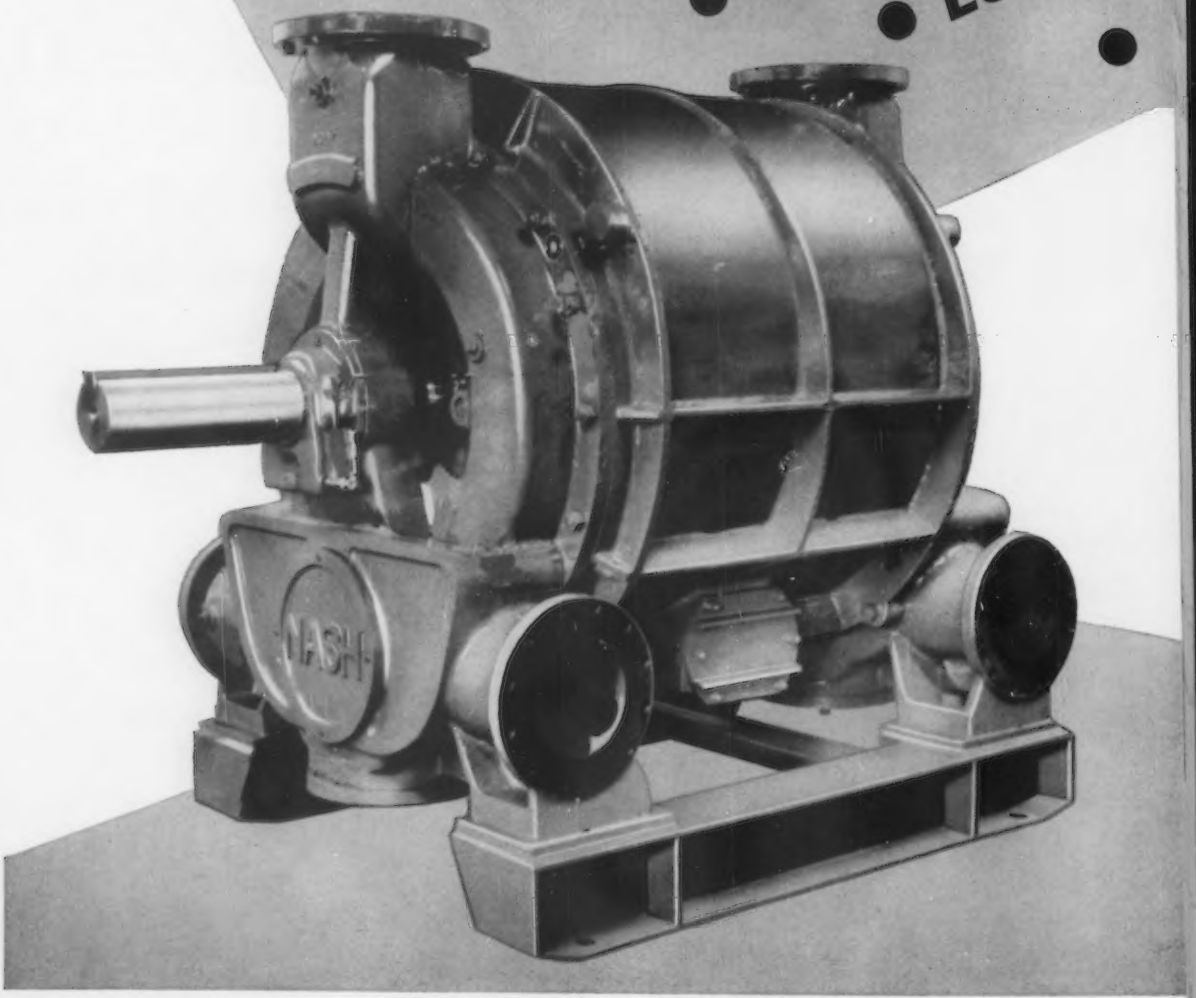
PULP MILL EQUIPMENT AND STOCK PREPARATION MACHINERY

Canadian Associates:
The Alexander Fleck Ltd.
75 Spencer Street, Ottawa

a new NASH

designed for

- HIGH PERFORMANCE
- RELIABILITY
- LOWER
-



VACUUM PUMP

INVESTMENT
REDUCED OPERATING COSTS

- Vacuums to 25″ of Mercury with sustained volume and lower horse power. Available in capacities to 9000 cubic feet.

Can be supplied with integral reduction gear for direct connection to high speed motors.

Material reduction in floor space required.

Send now for details of the new 6000 series Nash Vacuum Pumps.

NASH ENGINEERING COMPANY

SOUTH NORWALK. CONNECTICUT. U.S.A.

A portion of the Fitchburg Paper Company plant in Fitchburg, Massachusetts. The handsome new building in the foreground houses the Hardinge Filtration Plant.

Clean Water...

FOR FITCHBURG PAPERS

The Fitchburg Paper Company of Fitchburg, Massachusetts, is a producer of high-quality specialty and technical papers for a widely diversified market. Fitchburg products include photographic papers, reproduction papers, gift-wrapping papers, transparentized sheets for business forms, and many other highly specialized, quality papers.

An important ingredient in paper manufacturing is an abundant supply of good process water. The manufacture of Fitchburg's high quality papers demands an exceptionally clean, pure water. To improve their product quality to meet the exacting demands of their various customers, Fitchburg Paper Company, in 1957, added to their facilities a completely new process-water filtration plant, in which the key equipment is a Hardinge Automatic Backwash Sand Filter.

Raw water is drawn from a nearby river, passes through a sedimentation reservoir, and enters the new water filtration plant.

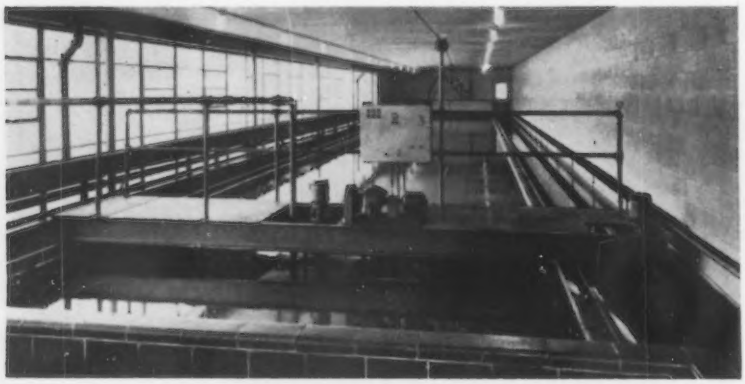
The Hardinge filter tank measures 16 feet in width by 110 feet in length. The filter bed is separated by vertical stainless steel spacers into 165 compartments running across the 16' width of the filter bed, each with its own sand bed and underdrain, and individual opening to the filtered water channel.

The sand in each of these compartments is cleaned periodically by a moving backwash carriage which reverses the flow in the compartment over which it is operating, backwashing one compartment at a time with filtered water, while the rest of the filter bed operates in the normal manner. Filtration is continuous, with no shutdown necessary for backwashing.

Operation of the backwash carriage is controlled automatically either by water-level operated switches, or by a timing device.

The filtered water drops to a clear well directly beneath the filter, and from this point is pumped, as needed, to the various paper making processes.

The Hardinge filter at Fitchburg has been in operation for nearly four years, and is currently providing approximately 5 million gallons per day of process water which satisfactorily meets the Fitchburg paper quality requirements.



Interior view of the Hardinge Filtration Plant at Fitchburg Paper Company. A clearwell is located directly under this 5,000,000 gallon per day filter.

HARDINGE

COMPANY, INCORPORATED

Main Office and Works • 240 Arch St., York, Pa.

"Hardinge Equipment—Built Better to Last Longer."

NEW YORK
TORONTO
CHICAGO
HIBBING
SALT LAKE CITY
SAN FRANCISCO
HOUSTON
LAKELAND
BIRMINGHAM

News of Suppliers

(Continued from page 52)

Improved Machinery Inc., Nashua, New Hampshire, announces the appointment of Henry E. Wilt as sales representative in Michigan, Ohio, Indiana and Illinois. Mr. Wilt is a graduate civil engineer and was formerly an assistant pulp mill superintendent at West Virginia Pulp and Paper Company, Luke, Maryland. His home is in Kalamazoo, Mich.

H. E. Wilt

D. R. Nichols, Jr.

Nichols Engineering & Research Corp. Board of Directors has elected Douglas R. Nichols, Jr., executive vice president of the firm. Main office of the firm is at 70 Pine St., New York City. Mr. Nichols is a director of the organization and served formerly as vice president and treasurer. Mr. Nichols also serves as a director and President of Nichols Engineering & Research Corp.. of Canada, Ltd., Montreal.

Metal Hydrides Inc. has entered into a reciprocal agreement with **Mo och Domsjo Aktiebolag,** Ornskoldsvik, Sweden, for development of sodium borohydride in the pulp and paper field. Under the terms of the agreement, MHI will administer licenses owned by MODO in the U. S. for the treatment of cellulose and cellulosic materials with sodium borohydride.

"With the recent acquisition by Metal Hydrides Inc. of a multi-million pound-per-year sodium borohydride production facility and the resulting downward pricing of sodium borohydride to $7.50 per pound for sodium borohydride SWS in tank car quantities," Lewis W. Davis, MHI president, reports, "our company is in a very favorable position." In addition, the two companies have agreed to exchange all application technology in this field as is deemed practical by either company.

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

Nopcote® C-104 is out of this world when it comes to lubricating protein, starch or latex coating colors. A fluid-stable, 50% calcium stearate dispersion, it produces a clean, dust-free coating with improved gloss—even at low calender pressures.

This lubricant improves flow and leveling characteristics to the point where a smooth, even application is possible at high speeds and on any equipment—trailing blade, roll train, air knife, or size press. It minimizes surface pattern, too, and gives your sheet that extra increment of salability.

This mill-proven coating additive is fluid and easy to handle. Other advantages are that it has little effect on color viscosity and permits application of high-solids, quick-drying coatings.

Nopco technical representatives will be happy to supply samples of Nopcote C-104 and set up a mill trial at your convenience.

Dispersants
Defoamers
Wax Sizes
Calender Stack Lubricants
Detergents
Emulsifiers

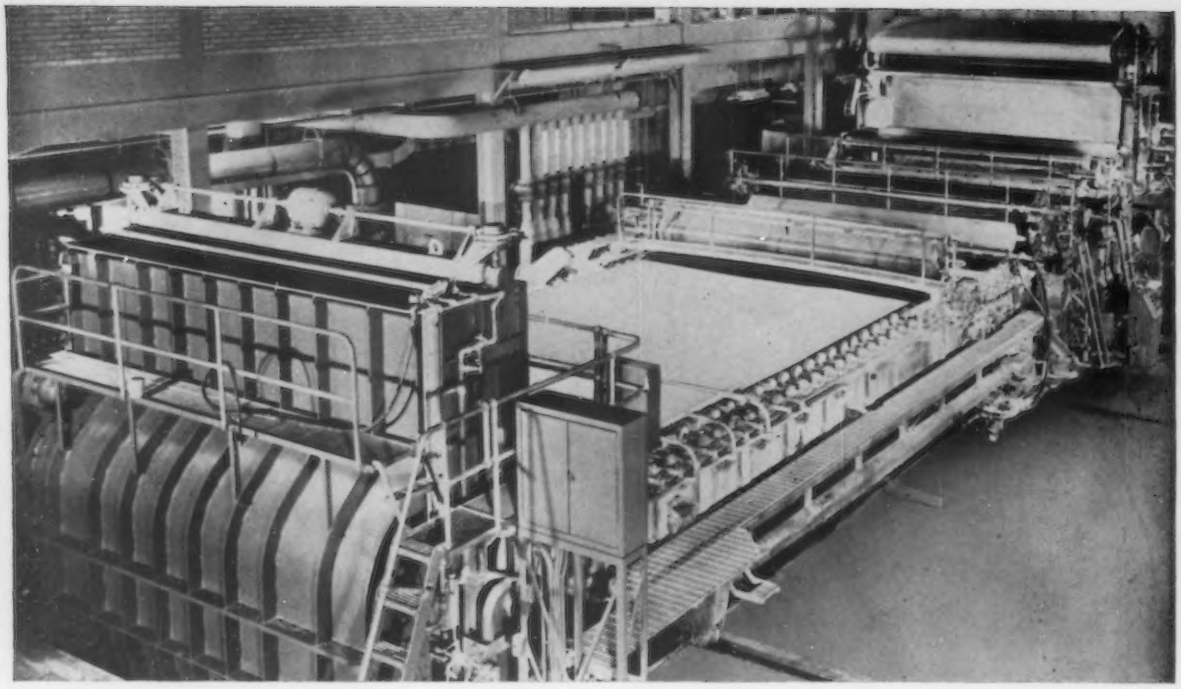
NOPCO CHEMICAL COMPANY

NOPCO®

60 Park Place, Newark, N.J.

Plants: Harrison, N.J. • Carlstadt, N.J. • Richmond, Calif. Cedartown, Ga. • London, Canada • Mexico, D.F. • Corbeil, France • Sydney, Australia

Manufacturing Licensees Throughout the World



Talk About Rugged Individualism!

Any Fourdrinier machine is an individualist. To begin with, it's not something you buy off a shelf. Custom-made, each one's operating characteristics are all its own and like no other.

It is this very individuality . . . and the resulting potential it offers . . . that has inspired the constant research and development of *WISCONSIN* Fourdrinier Wires, which are as notably different from other wires as each machine is from other machines.

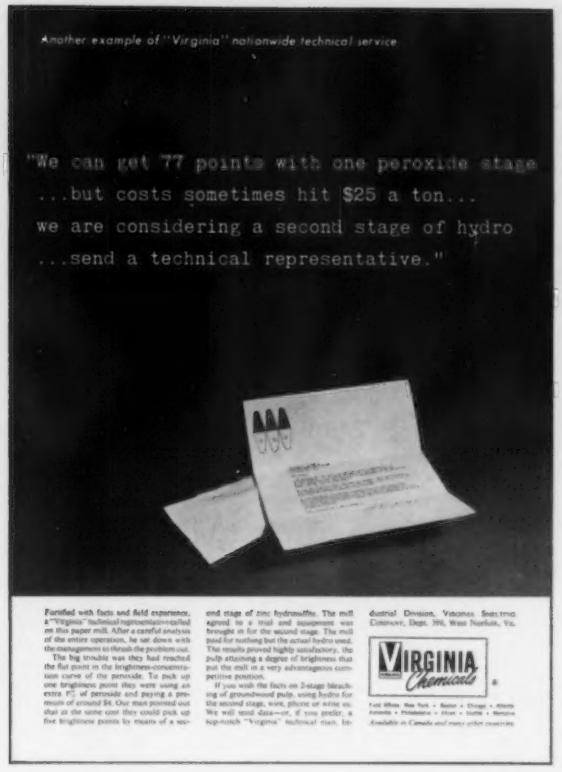
WISCONSIN Wires are custom-matched to the unique characteristics of your specific paper making machine. When the necessary characteristics of this "marriage" are satisfied, then, your machine will develop its full, built-in potential for the highest quality production at the lowest possible operating costs.

The addition of the new LEV-L-WEVE* to *WISCONSIN'S* full line of Fourdrinier Wires represents an important break-away from traditional Fourdrinier Wire application. LEV-L-WEVE offers many added advantages in wire life, production quality and lower operating costs. *WISCONSIN'S* specialized methods and machines have been developed in over 60 years of practical experience and continued research to supply the best in Fourdrinier Wires. Call or write, today, and a *WWW* representative will stop and tell you how *WISCONSIN* Fourdrinier Wires can help to produce dollar savings for your mill. Of course, there is no obligation to you.

*Patent Applied For.

WISCONSIN WIRE WORKS
Box 767 • Dept. J-81
Appleton, Wisconsin

THESE ADS TOLD YOU THE STORY...
LEADING MANUFACTURERS KNOW THE RESULTS


Another example of "Virginia" nationwide technical service
"We can get 77 points with one peroxide stage ...but costs sometimes hit $25 a ton... we are considering a second stage of hydro ...send a technical representative."
Fortified with facts and field experience, a "Virginia" technical representative called on this paper mill. After a careful analysis of the entire operation, he sat down with the management to thrash the problem out.
The big trouble was they had reached the flat point in the brightness-concentration curve of the peroxide. To push up one brightness point they were using an extra 1% of peroxide and paying a premium of around $4. Our man pointed out that at the same cost they could pick up five brightness points by means of a second stage of zinc hydrosulfite. The mill agreed to a trial and equipment was brought in for the second stage. The mill paid for nothing but the actual hydro used. The results proved highly satisfactory, the pulp attaining a degree of brightness that put the mill in a very advantageous competitive position.
If you wish the facts on 2-stage bleaching of groundwood pulp, using hydro for the second stage, wire, phone or write us. We will send data—or, if you prefer, a top-notch "Virginia" technical man. Industrial Division, Virginia Smelting Company, Dept. 396, West Norfolk, Va.
VIRGINIA Chemicals
Available in Canada and many other countries

"We offer free mill trials to show the fine results and low cost of groundwood pulp one-stage hydro bleaching—the only cost to the mill is for the hydro"
George V. Rittenhouse (left) and Robert W. Barton
Technical representative Bob Barton and salesman George Rittenhouse, both of Virginia Smelting Company, answer some questions regarding the efficiency of bleaching groundwood pulp with one stage of hydro.
Q. Do zinc and sodium hydrosulfite provide the most economical method of one-stage pulp bleaching?
Mr. Barton—If the mill is going for anything between 2 and 11 brightness points, bleaching groundwood pulp with hydro is virtually always the cheapest method. It is easier to apply—there are no control tests involved—and the chemical cost is much lower.
Q. Is it difficult to set up a trial run for a mill that might want it?
Mr. Barton—Not usually. Frequently much of the equipment we need is available in the mill. We go in with our lab equipment and make tests, checking the pH we're going to deal with, and possibly deciding on the maximum temperature possible. We give all the facts to the mill—and if they want the trial, we set it up. Often the mill has a pulp storage chest. A few changes and we can use it as a bleaching tank. We'll bring in binders, attach hoses, and start the trial.
Mr. Rittenhouse—Our technical men stay there until the setup is running perfectly and they make sure the operators know everything they need to. You'd be surprised at what we run into sometimes, even in mills that have been bleaching regularly with hydro. They take the powdered hydro and dump it in on top of the stock. Of course, hydro breaks down fast when it is exposed to air, and they wind up with reaction times too short—temperature not showing the proper effect—and poor brightness response at the end. I might add that faulty mixing like this can cause a corrosion problem, too—a problem that does not arise if proper air-free mixing is standard procedure.
Mr. Barton—A good point, George. This is the chief reason why some mills are under the mistaken impression that hydro always causes a corrosion problem. If hydro is handled properly there's no corrosion problem.
Q. Isn't a mill trial a pretty extensive service at no charge?
Mr. Rittenhouse—Yes, I suppose so—but I consider it the most effective way of showing a mill the economy and the good results obtainable with hydro. After all, mill trial data offer the most believable evidence of what I say. And production doesn't have to be stopped—we can almost always set up the mill trial without affecting it.
Q. What are the advantages to the mill in using a "Virginia" hydro?
Mr. Barton—There are several. One is the consistently uniform quality and purity of our hydro, either the zinc or sodium. It's a very clean, free-flowing powder—stark, packed and shipped as moisture-free as modern manufacturing methods can make it.
Mr. Rittenhouse—And of course our technical service goes with it. A mill can always call for assistance and get a "Virginia" technical man. It's the accepted thing with our customers.
• • •
FOR A FREE MILL TRIAL
—just drop us a line, phone or wire, and a representative will call on you at your convenience.
Industrial Division
VIRGINIA SMELTING COMPANY
Box 382, West Norfolk, Va.
VIRGINIA Chemicals
Available in Canada and many other countries

HYDRO BLEACHING—
WHETHER 1-STAGE OR 2-STAGE—
GIVES REQUIRED BRIGHTNESS AT LEAST COST

Men in the paper industry are noted for basing their decisions on facts . . . and anyone who has examined all the facts knows that hydrosulfite, whether used as a single-stage bleaching agent or the second stage in a 2-stage bleaching process, produces mechanical pulp at *any* brightness level more economically than any other method.

In single-stage bleaching to standard brightness levels hydro will give you more brightness, pound for pound, than any other known method. And at lower chemical cost. The reason is that hydro is a powerful reducing agent, particularly effective at low concentrations. Oxidizing bleaches require higher and more costly chemical concentration for comparable results.

For super brightness gains, 2-stage bleaching is a must, because in a single-stage oxidizing bleach the brightness reaches a flat point below the maximum attainable for the pulp. A second stage of hydro gives you those critical extra points—and more—at the lowest possible cost per point in the finished sheet.

So before you decide, get all the facts from "Virginia" . . . the industry's leader in groundwood bleaching technology. Call or wire us—we will send you complete data. Or, if you prefer, we will have a technical service engineer discuss your problem in detail.

Chemical Division, Dept. 262
VIRGINIA CHEMICALS & SMELTING CO.
West Norfolk, Va.

VIRGINIA Chemicals ®

Field Offices: New York • Boston • Chicago • Atlanta
Asheville • Philadelphia • Akron • Seattle • Memphis

Available in Canada and many other countries

NERCO NIRO®

"GENTLE-IZED" SPRAY DRYING

plays an important role in the modern paper mill

SPENT SULPHITE LIQUOR CONVERTED TO MARKETABLE CHEMICAL BY-PRODUCTS

Marathon, Division of American Can Company, is showing the way to effective stream pollution control by turning its concentrated spent sulphite liquor into a dry product for industrial uses.

The new Nerco-Niro spray dryer at Marathon's Green Bay pulp and paper mill provides for 50 tons of finely powdered chemicals now being produced each day and sold under the trade name of "Norlig."

The "Gentle-ized" spray drying process produces a free-flowing granule of exceptionally high bulk density through use of a special atomizer wheel which was developed to cope with the liquor concentrate. Working as a team, Marathon and Nichols technicians conducted extensive trial runs at the Nerco-Niro laboratories. Based on the successful results of these laboratory investigations, the Nerco-Niro organization was chosen to proceed with the design and construction of the spray dryer shown.

SPRAY DRIED PAPER COATING CLAYS

Pictured are three of the Nerco-Niro spray dryers at Minerals & Chemicals Philipp Corporation where production of spray dried paper coating clays keeps pace with market growth. Moisture content of the dried product is under one-half of one percent, with no attrition of the fine particles and no burning or discoloration of this heat sensitive clay.

As pioneers in the design of spray dryers for paper clays, Nerco-Niro have built spray dryers accounting for 70% of the total U.S. production capacity within this field.

Nerco-Niro engineers are at your service to discuss and evaluate the advantages of a spray dryer installation.

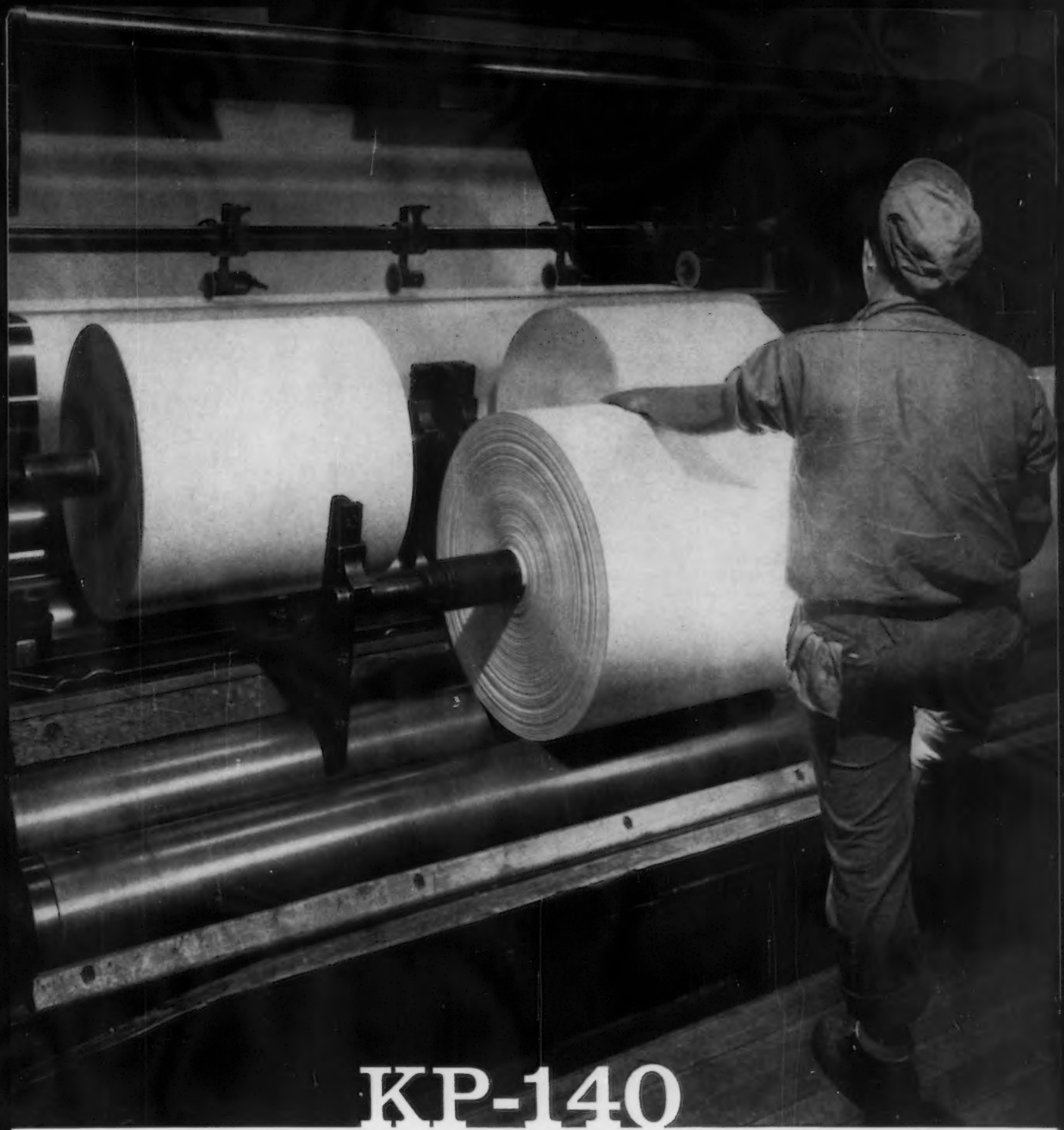
ALSO MANUFACTURERS OF
VORJECT CLEANER
VORVAC SEPARATOR
VORTRAP CLASSIFIER
NICHOLS PRECLEANER

NERCO-NIRO SPRAY DRYER DIVISION

NICHOLS

ENGINEERING & RESEARCH CORPORATION
80 PINE STREET, NEW YORK 5, NEW YORK

SAN FRANCISCO MONTREAL INDIANAPOLIS



KP-140

(TRI-BUTOXYETHYL PHOSPHATE)

foam killer boosts paper quality

Foam carries dirt and grime onto paper surfaces during the coating process . . . causes specks, dry spots, pitting. To prevent such defects, major paper manufacturers are using KP-140 in their coating formulas. This efficient FMC defoamer promotes blemish-free appearance and uniform strength in papers. It leaves no odor or other residues and is economical, providing excellent foam suppression at low cost.

For data sheet, price information and a list of representatives with warehouse stocks of KP-140, write to:

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Chemicals and Plastics Division

161 East 42nd Street, New York 17, N. Y.

CHAS. T. MAIN, INC.

ENGINEERS

PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

BOSTON, MASSACHUSETTS

CHARLOTTE, NORTH CAROLINA

Stadler Hurter

International Ltd.

Engineers • Designers • Consultants

Specializing since 1923 in all phases of design, modernization and expansion of pulp and paper mills from forest to finished product.

1501 ST. CATHERINE ST. W.
MONTREAL
NEW YORK • MEXICO • STOCKHOLM
PARIS • ZURICH

Meet Huyck's

Bill Hodges

Bill Hodges (William S.) is regarded by his colleagues at Rensselaer as a super "Super". That's because he's doing a fine job as Superintendent of the Rensselaer plant. Bill is one of our "veterans", having sixteen years of service at Huyck behind him. Prior to his present assignment, he served as Standards and Control Engineer, Assistant Superintendent for Fabrication and Assistant Superintendent for Finishing.

Bill has made several major contributions to the improvement of the felt-making process at Huyck, a result of his long and varied experience in all phases of the felt industry. He graduated from the Drexel Institute of Technology with a degree in Chemical Engineering. He is still another reason why Huyck Performance is High Performance through experience and technical "know-how".

HUYCK FELTS

First in felts since 1870

Prices of Fibers

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT
WEEK ENDED AUGUST 22

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.75	n.a.	n.a.	$7.50/ —
3	7.75/7.00	$8.00/7.75	$7.50/7.00	7.00/6.75
4	7.00/6.25	7.00/6.75	6.50/6.25	6.50/6.00
5	6.25/5.75	6.50/6.25	6.00/5.50	5.50/5.25
6	5.75/5.25	6.00/5.75	5.25/5.00	5.00/4.75
7	5.25/4.75	5.25/5.00	4.75/4.00	n.a.

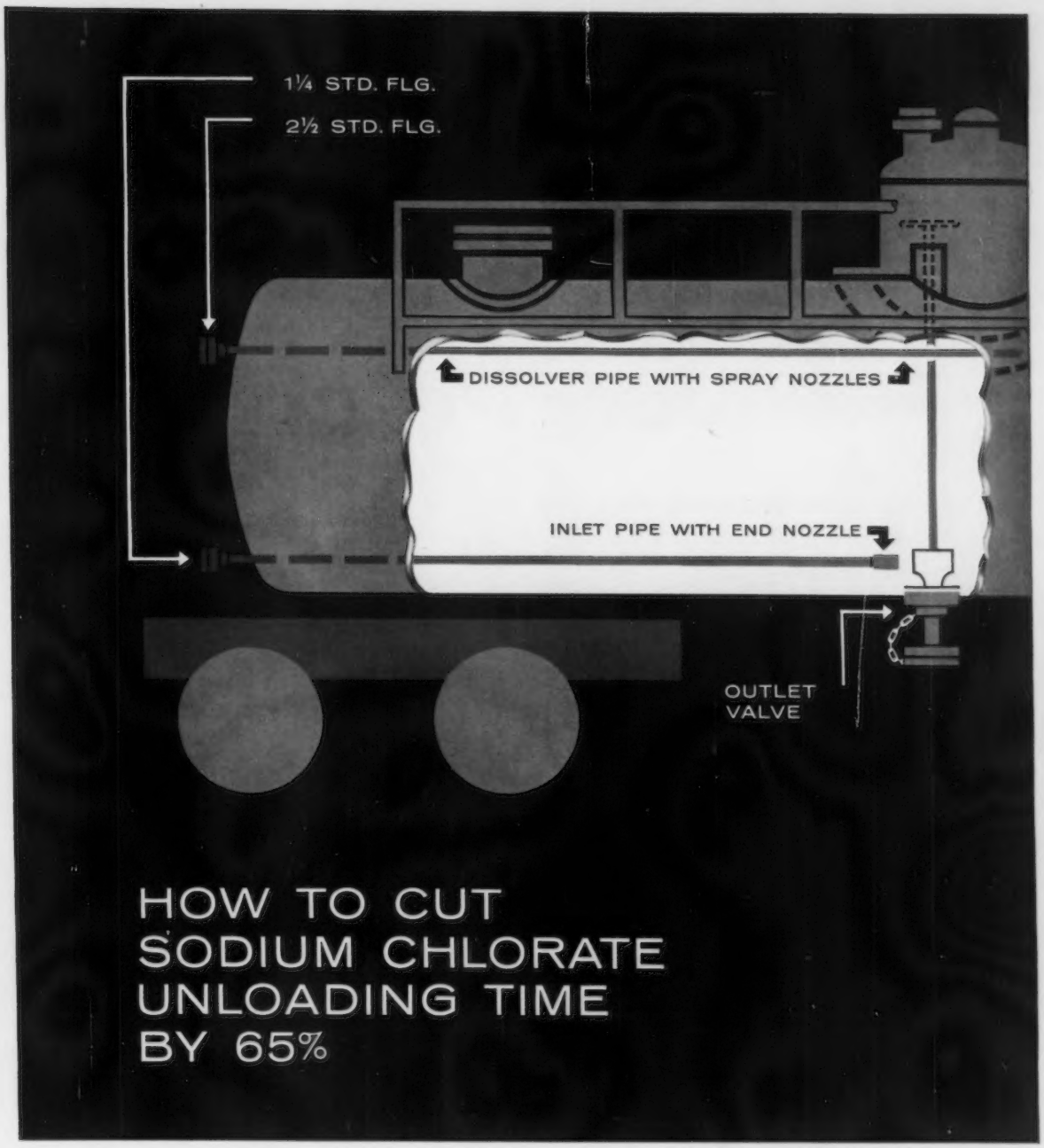
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	August 28	August 28	August	August
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	14.00/ —	16.00/ —
Overissue News (Lg. size)	9.00/ 11.00	9.00/ 11.00	19.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	7.00/ 9.00	11.00/ —	13.00/ —
Old Corrugated Containers	17.00/ 18.00	18.00/ 18.50	22.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	33.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	32.50/ 35.00	35.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	40.00/ 45.00	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 75.00	47.50/ —	37.50/ 40.00
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	45.00/ 47.50
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	13.00/ —	25.00/ —
White Newsblanks	42.50/ 45.00	30.00/ 40.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 65.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	52.00/ 57.00	47.50/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	65.00/ 70.00	70.00/ —	75.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	42.50/ —	23.00/ —
White Ledger	45.00/ 50.00	50.00/ 55.00	50.00/ —	40.00/ 45.00
Mixed Book & Mag.†	— / —	— / —	10.50/ —	/ —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	27.50/ —	8.00/ 13.00

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.



HOW TO CUT SODIUM CHLORATE UNLOADING TIME BY 65%

You can unload these 40- and 50-ton Hooker tank cars of sodium chlorate in about 90 minutes—roughly 2½ hours faster than before. You save that much on supervisory and labor costs as well as important time.

How the system works

1. Free the outlet valve with hot water pumped through the lower inlet pipe.
2. Pump hot water through the bottom outlet to approximately fill the tank.
3. The chlorate slurry thus formed is drained from the bottom outlet.
4. Hot water is then pumped through the upper dissolver pipe until all of the chlorate is completely dissolved.

Result: you cut unloading time by 65%.

Only Hooker tank cars give you this uniquely designed "fast-flow" feature. It will pay you to check Hooker technical service on all phases of handling, storing, and using sodium chlorate. For further details, ask for Bulletin 99, "Handling Sodium Chlorate."

HOOKER CHEMICAL CORPORATION

1809 FORTY-SEVENTH STREET, NIAGARA FALLS, NEW YORK

HOOKER CHEMICALS PLASTICS

Sales offices: Buffalo, Chicago, Detroit, Los Angeles, New York, Niagara Falls, Philadelphia, Tacoma, Worcester, Mass. In Canada: Hooker Chemicals Limited, North Vancouver, B.C.

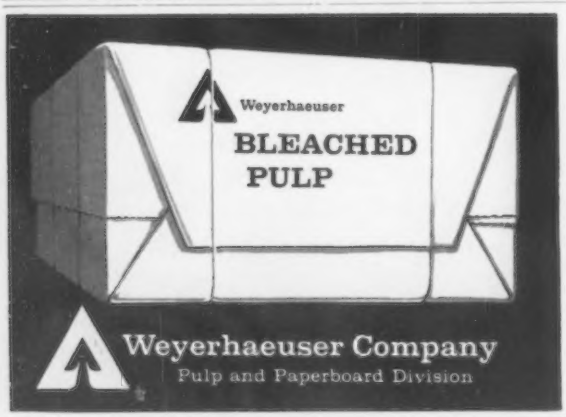
AMERICAN AND ENGLISH CLAYS

FOR ALL PAPER MAKING PURPOSES

ANGLO-AMERICAN CLAYS CORP.

(Formerly: English China Clays Sales Corporation)

6 East 45th Street, New York 17, N. Y.



Weyerhaeuser Company
Pulp and Paperboard Division

BEST OF THE CARTOONS

from PAPER TRADE JOURNAL
Edited by John C. W. Evans

Eighty pages of "laughs."
The humorous side of things that happen in paper and pulp mills at one time or another.
Get a copy—it will only cost you $1.25 and where could you get so much enjoyment for so little?
$1.25 per copy Postage Prepaid.

LOCKWOOD TRADE JOURNAL CO., Inc.
49 West 45th Street, New York 36, N. Y.

Send postage prepaid, Remittance with order.....copies, *Best of the Cartoons*, Price $1.25.
All New York City Orders are Subject to a City Sales Tax

Name .....
Street..... *City and State*.....
....., 19.....*Ordered by* .....

1 INSTRUMENT *for Testing* smoothness porosity softness

Simply interchanging the lower test plates of the Gurley-Hill S-P-S Tester converts this instrument for testing smoothness, porosity or softness of any printing and most industrial papers. Meets TAPPI and ASTM "Suggested Method for Determining Smoothness," as well as standard methods for finding air resistance or porosity.

Write for Bulletin 1400, describing complete line of Gurley paper testers.

W. & L. E. Gurley, *520 Fulton Street, Troy, N. Y.*

Another Plant To Serve You

SHIP US IN KALAMAZOO

PACKING PLANTS
CHICAGO, ILL.
WASHINGTON, D. C.
CAMDEN, N. J.
KALAMAZOO, MICH.
LOUISVILLE, KY.

THOMAS PAPER STOCK CO.
1500 N. Hooker St. MO-4-5700 Chicago 22, Ill.

Knox Felts

KNOX WOOLEN COMPANY

CAMDEN, MAINE

America's First Manufacturer of Endless Paper Machine Felts

University of Maine Lectures on Pulp and Paper Manufacture

SERIES NO. 2

A Valuable Textbook for the Paper Industry

Embracing the Complete Lectures as given at the University of Maine.

Three hundred and seventy-three pages and an additional 4-page colored insert of up-to-date material covering a broad field in both pulp and paper making and including many fine illustrations and diagrams.

For students expecting to enter the industry who wish to increase their knowledge and improve their positions, this textbook offers a complete education in pulp and paper manufacture.

For executives, superintendents, chemists, engineers and others whose knowledge of the industry is more comprehensive, this textbook will be invaluable as a reference for providing figures, process details, etc.

LOCKWOOD TRADE JOURNAL CO., Inc.
49 West 45th Street, New York 36, N. Y.

Send postage prepaid, Remittance with order. . . . copies of UNIVERSITY OF MAINE LECTURES, bound in Cloth at $5.00 per copy.

New York City Orders are Subject to a 3% City Sales Tax

Name .....

Street .....*City and State* .....

....., 19.....*Ordered by* .....

PRICE & PIERCE LTD.

WOODPULP

PAPER

LONDON
27 CLEMENTS LANE

NEW YORK
60 EAST 42nd ST.

MONTREAL
SUN LIFE BLDG.

RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.

PAPER TRADE JOURNAL CLEARING HOUSE

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

6 East Monroe, Chicago ANdover 3-1970

TF

MATURE TECHNICAL MAN

Well-known northeastern consulting house seeks a man having recent first-hand experience with technical development projects such as those in specialty papers and process or product development. Should have broad industry contacts; must have executive potential but should not be merely an administrator. Possible opening for recent retiree.

Duties will be those of manager of one division of paper group; will negotiate and execute contracts. Full participation in stock ownership and management.

Reply will be made only to applicants supplying 10-year employment and salary history, present salary requirements, personal details, etc. No references or employers contacted without express permission.

Box 61-183 care Paper Trade Journal.

S-18

SOUTHERN REPRESENTATIVE

Manufacturer machine clothing requires man to call on paper mills in southern states. Application confidential and should state experience, age, education, residence, and remuneration expected. Write Box 61-162, care Paper Trade Journal. 0-2

Help Wanted

PROJECT ENGINEERS

We are seeking several graduate engineers with papermill experience to handle complete engineering of paper machine components. Compensation and position open, depending on experience and ability.

Southwestern Ohio location, medium-sized community, new office and factory, small to medium-sized company provide highly desirable working conditions. A young, growing company with a record of success in a world-wide business offers outstanding opportunity.

Send resume to:

Industrial Relations
The Manchester Machine Company
P. O. Box 509
Middletown, Ohio

S-25

PAPER MEN

PRODUCTION • SALES • MANAGEMENT

"Leaders Choose Leaders"

TOP MEN—At every level, know that Cadillac—the nation's largest executive placement service—has the widest choice of best available positions in the paper field with growth companies who offer challenging work and top earning potential.

TOP COMPANIES — Both "Giants" and "Comers", know that Cadillac's 35 year reputation has been built on effective confidential service to the employer looking for the right man.

Whatever your requirements, contact us in complete confidence and without obligation.

FRED J. STEFFENS (Member Tappi)
Personnel Consultant To The Paper Industry

Cadillac Associates, Inc.
29 East Madison Bldg., Chicago 2, Illinois
FInancial 6-9400 S-18

EXPORT SALES ASSISTANT

for Paper Department of large International Merchant firm. General knowledge of and interest in paper and paperboards. Must be adept at correspondence. Sales experience preferred but not essential. Aptitude for accounting helpful. Willingness travel overseas if required. Reply with detailed qualifications to Box 61-179, care Paper Trade Journal.

S-18

GIBBS-BROWER CO., INC.

10 Depot Plaza, White Plains, New York

Established 1898

Telephone—Rockwell 1-1130

BRANCHES: 400 Wash. Building, Madison 3, Wisconsin

Acepsa
Albenix #4418 — 5270 E. Wash. Blvd.
Mexico 15, D.F. — Los Angeles 22, Calif.

PRINTING PRESSES

1—60" 5 Color Gravure Press
1—48" 6-color Heinrich 4 Flexo 2 Gravure
1—42½" 5-color Staude Gravure Press
1—42" 6 color Heinrich Jet Jr.
1—42" 4-color Hudson Sharp Flexo Press
1—42" 3 color Manhasset Press—3 mos. old
1—36" 6-color Cottrell Heinrich Flexo Press
2—35" 2-color Bagprint Flexo Tailprinters
1—33" 6-color Modern Clipper Flexo Press
1—33" 4-color Wolverine Hydro-Printer
1—31" 4 color Wolverine Flexo press
1—31" 4-color PCM Co's Rotary Oil Ink
1—30" 6-color Kidder Flexo
1—30" 6-color Kidder calloprinter
1—30" 4 color H.S. Flexo Press
1—28" 2 color Champlain Roto Gravure Press
1—26" 3-color gravure press
1—24" Kidder 4 color Film Printer
1—24" 5-color Kidder Calloprinter
1—24" Kidder 4-color flexo
1—24" 4-color Kohlbach Flexo Press with Stanford Web Guide and Tension Controls
1—22½" 3-color Chambon Cup Press
1—2-color 17" x 11½" ATF Green Hornet

CAMACHINES

1—162" Type 10 Model 19 Shear Cut
1—82" Type 12
1—72" 10-10A
1—72" Type 10 6A Anti Friction Bearings
1—72" 8-10
1—62"—50"—42" type 6
1—62"—32" 26-3A Duplex
1—52" 24-7 Duplex
1—50" 28-3D Duplex

OTHER SLITTERS

1—152" D.A. Langston
1—92" "8A" Langstons
1—60" Inman, shear cut
1—52" Meisel (Shear Cut)
1—40" Kidder SH 40" rewind, shear cut
1—40" Beck Razor Blade slitter
1—40" & 1—52" Fales Model "8"
1—24" 1—30", 1—36" & 1—40" Kidder S.L. & 1—36" SLN shear cut

POWER PAPER CUTTERS

SEYBOLDS:
84"—50"—40" Precisions
56"-Dayton — 44"-Dexter — 44"-C&P
44"—10Z & 50"—10Z
44"-Mod. "CF"
75"-Oswego — 40"-Mod. "CF" — 38"-Oswego
50"-C&P — 32"-Oswego
57"-Oswego — 50"-Dexter — 32"-3Y

BAG MACHINES

2—PO2 Roto Bag Machines
2—Bagprint B-10 F&S Bag machine
1—#4 Lockport F&S B/Machine 17½ x 25
1—Hansel Bag Machine—3 color printer
1—Simplex 7-24 Pouch Machine, E/eye
1—Multipath Bag Machine — 4 Color Holweg Printer
1—Model 4 Potdevin Sack Machine
1—#101 Potdevin S.O.S.
1—#26 Matador F&S Bag Machine
2—Roto Model "C"

MISCELLANEOUS MACHINES

1—56" Christensen Bronzer
1—24" International 2-P Waxer
1—72" Waldron Tandem Reverse Roll Coater
1—46" & 1—42" Reverse Roll Coaters
4—Hayssen 4 & 6 Roll Wrappers
5—Hamblets 100-76-72-64-60 W/Layboy
1—80" Hamblet Duplex W/Layboy
1—55" Beck Model A-5
1—Potdevin Tin Tie Machine
1—Hudson Sharp Gift Wrap Folder
2—38" x 24" 4-Post Seybold Die Presses
2—Die Cutters—27" x 38"—30" x 44"
3—Sheridans 50 x 24 44 x 20 36 x 18
Embossers 48", 55" Waldron & 50" H.S.
1—60" x 35" Standard Die Press

S-18

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET • NEWARK 4, NEW JERSEY

STANLEY S. ROSS, President — HUMBOLDT 4-8880

QUALITY GUARANTEED MACHINERY FOR SALE OR LEASE

BACK STANDS—FOR ROTARY SHEETERS
2—Stevens 10 roll (5 running—5 loading) for 46″ max. roll dia. Complete including elec. hoist for lower rolls. New 1959.

BEATERS
2—3000# Downingtown 60″ x 67″ roll; like new
2—600# Valley, roll 48″ dia. x 38″ face, tile lined, 50 h.p. motors

CALENDER STACKS
1— 80″ P & J 7 roll; heavy duty
2— 82″ & 86″ Lobdell five roll
1—104″ B-C 8 roll
1—115″ B-C 7 roll
1—124″ Downingtown 5 roll
1—124″ Downingtown 6 roll
1—160″ Lobdell—8 Roll; Hydraulic Loading; motor operated

CENTRIFUGAL SCREENS
3—24″ Shartle Selectifiers, non-contacting type scrapers, monel baskets, air operated valves.

CHIPPERS
1— 96″ Murray 6 knife; A-F Brng.

COATERS
1— 24″ Waldron Coater & Embosser
1— 60″ Egan Air Knife—New 1956
2— 65″ & 76″ Mayers

COMPLETE PAPER & BOARD MACHINES
3—Sandy Hill 81″ trim single cyl. Tissue
1—B-C 100″ 7 cyl. Board Machine Complete
1—M & W 72″ Trim Yankee Fourdrinier
1—Rice Barton 84″ Fourdrinier

CYLINDER MOLDS
1—104″ face x 36″ dia.
6—114″ face x 36″ dia. w/rubber couches
8—124″ face x 36″ dia. w/rubber couches

CYLINDER WET ENDS
1—Single cylinder; 99″ face x 48″ dia.
1—114″ 7 cyl. Wet End, complete
1—124″ 7 cyl. Wet End, complete

DRIVES—ENCLOSED RIGHT ANGLE
17—25-75 h.p.—complete with clutches & cone pulleys
38—1 h.p.-125 h.p. parallel gear boxes

DRYERS—HYDROSTATICALLY TESTED

24″ Dia.:
37— 46″ face; Chrome plated
1—156″ face w/gear and steam joint

28″ Dia.:
3— 70″ face w/gears & bearings
3— 73″ face w/gears & bearings
6— 76″ face w/gears & bearings
4— 84″ face w/accessories

36″ Dia.:
1— 42″ face
2— 44″ face; 2—46″ face
3— 70″ face w/gears & bearings
11— 72″ face w/gears & bearings
1— 74″ face Lukenweld w/A-F Brng.
8— 75″ face w/gears & bearings
26— 76″ face; complete section
9— 76″ face w/gears & bearings
2— 77″ face w/gears & bearings
1— 78″ face w/gears & bearings
2— 80″ face
5— 84″ face
9— 84″ face; complete section
7— 92″ face; complete section
1— 96″ face
1—138″ face
10—160″ face

42″ Dia.:
23— 73; 74; 76″ face; complete section
46— 96″ face w/gears, frames & bearings
1—120″ face
1—160″ face

48″ Dia.:
39— 46″ face; nickel plated
12— 82″ face; complete section
3— 84″ face
7— 94″ face
1— 96″ face
13— 98″ face—complete section
19—106″ face w/gears & bearings
6—110″ face w/gears & bearings
10—123″ face w/gears, frames & bearings
1—128″ face
22—164″ face w/gears & bearings

EMBOSSERS
1— 80″ Hudson Sharp; A-F Brng.
2— 62″ Textile Machinery Co., w/drives

EXTRACTORS ROLLS—DOWNINGTOWN
1—128″ face x 24″ dia.—complete section

FELT CONDITIONERS—VICKERY
1—New Bird—218″ Max. cleaning area

FLAT SCREENS
1— 12 plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates
294 S.S. plates—.014 cut to .020 cut

FOURDRINIER SECTIONS
1—Beloit Yankee Fourdrinier section—wire 132″ x 47 ft. 4″. Oper. 870 f.p.m. 132″ x 10 ft. Yankee Dryer also available.

INLETS & HEADBOXES
1—131″ Valley w/10″ distributing roll; SS lined

JORDANS
1—Horne w/A-F Brngs.
1—Shartle Miami #2 w/A-F Brngs.
1—E. D. Jones #4 Imperial A.F. Brng.

LAYBOYS
1—Hamblet 124″—gear motor operated
1—Hamblet 88″—gear motor operated
1—Beck 65″ w/auto lowering device

MOTORS 3 PH 60 CYCLE
1—100 h.p. GE; 440 v; 695 r.p.m.
1—300 h.p. West; 2200 v; 503 r.p.m.
1—350 h.p. GE; 2200 v; 720 r.p.m.; Synch.

PAPER MACHINE DRIVES
1—De Laval 100 h.p. steam turbine w/reducers

PULP MILL EQUIPMENT
1—Lannoye #1 Pulper
1—Murray 2 deck Chip Screen, 5 ft. x 14 ft.

PUMPS—OPEN IMPELLER
47—Centrifugal Stock and Water Pumps
1—Shartle 8 x 18 Duplex

REELS
1—100″ Kohler automatic two arm unwind reel; 60″ dia. rolls; new condition
1—109″ two bowl upright
1—123″ Beloit—2 bowl
1—126″ Beloit Aldrich surface drive type
1—146″ B & S pope type w/Reliance drive

REFINERS
2—#1 Claffin; A-F Brng.
3—#6 Morden Stock Makers—Model HA
1—24″ Downingtown Weiner; new
2—36″ Bauer, Model 185 w/2—75 h.p. motors
1—36″ Bauer Model 185 with 2 100 h.p. motors
3—Dilts #4 Hydrafiner—AF Brng.
1—Dilts 36″ Classifiners AF Brng.
2—#4 Shartle Cyclifiner AF Brng.
1—48″ Sutherland—S.S. Discs
2—42″ Sutherland—S.S. Discs

ROLLS
483—R. C. Couch rolls, S.S. distributor rolls; chilled iron calender rolls, breast rolls, press rolls, felt rolls. Forward your requirements.

ROLL GRINDERS
1—124 x 30″ Farrel w/crowning device
1—208″ x 32″ Farrel w/crowning device

ROTARY SCREENS
5—Bird #3A, Model 100 w/copper vats
1—Jones Leithwalk copper lined

SHEETERS—ROTARY KNIFE
1— 55″ Beck w/Jogger
5— 56″, 66″ & 70″ Hamblets
1— 65″ Kidder w/elec. eye and Layboy
3— 72″ Hamblet w/M&W Layboy
1— 76″ Beloit Duplex
1— 82″ Hamblet
2— 82″ Hamblet w/overlapping M&W Layboy
1— 85″ Hamblet Duplex w/Layboy
1—105″ Hamblet
1—112″ Beloit Duplex Board Cutter; A-F Brng.
1—134″ Hamblet Duplex w/Layboy

SLITTERS & REWINDERS

17¾″ Maximum Rewind Diameter
1— 26″ Cameron Type 24
2— 42 Cameron Type 26-2A

24″ Maximum Rewind Diameter
2— 42″ Cameron Type 6
1— 42″ Cameron Type 6 Shear Cut
2— 62″ Cameron Type 6

30″ Maximum Rewind Diameter
1— 52″ Cameron Type 10; A-F Brng.
1— 60″ Langston Shear Cut

36″ Maximum Rewind Diameter
1— 82″ Cameron—Model 10-10

42″ Maximum Rewind Diameter
1— 40″ Egan Shear Cut; A-F Brng.
1—136″ Cameron Type 18; A-F Brng.
1—161″ Cameron Type 18 w/60 h.p. Reliance VS Drive

48″ Maximum Rewind Diameter
1— 86″ M & W Four Drum Shear Cut
1—152″ Langston Shear Cut

60″ Maximum Rewind Diameter
1—112″ Cameron Type 18
1—120″ M & W two drum w/75 h.p. drive
1—120″ Langston
1—136″ Langston; AF Brng; shear cut

SLITTERS & REWINDERS—DOUBLE REWIND

30″ Maximum Rewind Diameter
1— 42″ Essex Shear Cut; A-F Brng.

STOCK CLEANERS
2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2″ & 6″ bronze
1—Bird Dirtec 12″. Rebuilt by Bird
9—4″ Vortraps—Bronze

STOCK REGULATORS
2—Poirier; 25T/D cap

SUCTION COUCH ROLLS
1—125″ face x 18″ dia.—bronze brng.
1—144″ face x 30″ dia.—roller brng.

SUCTION EXTRACTOR ROLLS—DOWNINGTOWN
1—126″ face x 22″ dia; complete section
1—134″ face x 18″ dia; A-F Brng.

SUCTION PRESS SECTIONS
1—114″ face x 20¼″ dia. R. C. Complete section
1—120″ face x 18″ dia.—R. C.—Roller brng.
1—126″ face x 24″ dia. R. C.; A-F Brngs.

SUPERCALENDERS
2—30″ Norwood 4 roll
1—53″ Norwood, 13 roll, glassine; A-F Brngs.
1—65″ Norwood 8 roll; A-F Brng.
1—92″ Norwood 7 roll w/ drive

TOWEL FOLDERS
1—Paper Converting single fold—towel

THICKENERS
1—Shartle—Cylinder 131″ x 36″—16″ Couch
1—Shartle—Cylinder 36″ dia. x 72″ face

TRIMMERS—POWER BACK GAUGES
1—50″ Seybold Twentieth Century
1—65″ Seybold Dayton
3—84″ Seybold Daytons
1—Challenge 34″ w/motor

UNWIND STANDS—CONSTANT TENSION
1—34″ Cameron Type CT—Electric Eye
1—72″ Cameron—w/c brake—air operated
1—82″ Cameron—w/c brake—air operated

VACUUM PUMPS
8—H-4, ½H-5, & H-5 Nash
2—L-5 & L-7 Nash
5—#2, #4, & #7 Nash Hytors
1—8 x 10 Connersville
2—Nash H-7
1—Nash K-6
1—Nash K-3

WET MACHINE
1—74″ face x 48″ dia. mold—complete machine

YANKEE DRYERS
1—132″ face x 10′ dia. Beloit; 35 psi

PULP AND PAPER ENGINEERS

Graduate engineers experienced in operations and maintenance for growth positions in an expanding pulp and paper mill located in Western Maryland. Under 35 years of age. Salary commensurate with contribution and excellent opportunity for advancement. Send detailed resume of experience and education in confidence to:

Industrial Relations Manager
West Virginia Pulp and Paper
Fine Papers Division
Luke, Maryland TF

CHEMISTS - PAPER CHEMISTS - CHEMICAL ENGINEERS

One of the nation's leading manufacturers of paper and paper products has openings in its research laboratories for COATING SPECIALISTS to work on projects in the areas of applied research, mill problems and new products.

Prefer a Ph.D. or M.S. degree in chemistry, chemical engineering or pulp and paper technology with 2-6 years experience. However, other backgrounds may be considered.

Openings also available for PAPER TECHNOLOGISTS to work on new product development in the technical papers area.

Prefer a B.S. degree in chemical engineering with 2-4 years experience in paper manufacturing.

Qualified candidates should send a complete resume of educational background and experience to:

G. H. MEILINGER
EMPLOYMENT SUPERVISOR
THE MEAD CORPORATION
CHILLICOTHE, OHIO

All replies will receive immediate and confidential attention. S-18

PLANT ENGINEERING

Our fully integrated pulp and paper mill has immediate opening for an energetic graduate M. E. This is an unusual opportunity for a man presently doing project engineering. We offer challenging position to a man who wants to grow with this company. Eastern location.

Send resume and salary desired to Box 61-181 care Paper Trade Journal. S-18

MID-ATLANTIC REPRESENTATIVE

Leading Dryer Felt supplier requires aggressive man to call on paper mills in Mid-Atlantic area. Good pay, expenses and automobile furnished; also insurance and retirement. Apply giving age, education, experience, family status, references. Address Box 61-153 care Paper Trade Journal. TF

CHEMIST or CHEMICAL ENGINEER WANTED

Recent promotion from Technical Department has created opening for graduate, with three or five years' experience in the pulp and paper industry, for an integrated bleach kraft pulp and specialty paper mill. Involves work in mill for a competent and ambitious man to advance to positions of greater responsibility. Excellent benefits and good starting salary. Please furnish complete particulars as to experience, education and references to:

THE KVP COMPANY LIMITED
ESPANOLA, Ontario
S-25

Works Manager

FOLDING BOX MANUFACTURING PLANT
ROME, ITALY

Well known international paper company seeks manufacturing man with wide experience in printing and conversion of boards, paper, film, and foil, on high speed package-making machines. Modern 320,000 sq. ft. plant employing 600 people. Output to double in one to two years. Must speak Italian or have Italian background. Age not over 50. Salary $12,000 up. Excellent opportunity for advancement. S-25

Box 1211 1501 B'way, N.Y. 36, N.Y.

TECHNICAL SERVICE ENGINEER

Recent chemist, chemical engineer, or paper school graduate to join technical service group of major integrated mid-western paperboard operation. Minor in biology or bacteriology helpful. Excellent work situation and advancement opportunities. Salary open. Submit detailed resume to Personnel Director, Packaging Corporation of America, Rittman, Ohio. S-18

Buy U. S. Savings Bonds

TECHNICAL ASSISTANT TO MILL MANAGER

M.E., E.E. or Ch.E. plus 5 years in paper manufacturing or closely allied industry.

Major emphasis on technical project work with excellent opportunity to acquire production management responsibilities.

Mills located in East and Midwest.

Forward detailed resume and salary requirements to:

PERSONAL PRODUCTS CORP.
Affiliate of Johnson & Johnson
Milltown New Jersey
0-2

Midwest Pulp and Paper Mill is seeking a *Graduate Chemist* or *Chemical Engineer* with three to five years experience working in the additive and surface treatment areas of a Paper Mill. Knowledge of trailing blade coating is required. Air knife coating experience desirable but not necessary. All replies will be considered confidential. Send resume including education, experience and salary requirements to Box 61-182 care Paper Trade Journal. S-18

Situations Wanted

***Production executive* — conversion of boards, paper & film. Well versed in heading up all production functions in an organization; or reorganization deal. Multiple manufacturing units. Employed — wishes change for challenging opportunity. Box No. 61-9 care Paper Trade Journal.** S-25

SUPERINTENDENT

Practical paper maker, 30 years experience manufacture all grades of box board, test liner, folding & coated boards. Capable solving all problems, quality production, power, maintenance and labor. Will consider foreign country. Box 61-176 c/o Paper Trade Journal. TF

CHEMICAL-INSTRUMENT ENGINEER

18 years background in Kraft and Sulfite pulping, bleaching, papermaking and converting. Experience includes operation and maintenance supervision, process development, quality control and plant start-up. Desires to relocate. Presently employed. Resumé upon request. Address Box 61-180 care Paper Trade Journal. S-18

Keep your eye on our Classified Advertising Section

For Sale

FOR SALE
LOW PRICES

2—86" B. & S. Wet Machines; Bronze and Rubber Press Rolls; A.F. Bearings on Couches and Cylinder Molds. Complete with Gear Drives. Excellent Condition.

RUDERMAN MACHINERY EXCHANGE
Gouverneur, New York
Phone 333-334
TF

For Sale

FOR SALE
NASH VACUUM PUMPS

5—H-6 347 Stainless Steel
2—H-6 C.I.
5—H-6 Bronze
3—H-5 C.I.
1—L-5
1—L-3 347 Stainless Steel

BRILL EQUIPMENT COMPANY
37-65 Jabez St., Newark 5, N. J.
0-2

PAPER TRADE JOURNAL is always mailed on Friday at East Stroudsburg, Pa. If you feel that there is undue delay in receiving your copies we suggest that you write to your local postmaster with a copy to S. E. Marsh, assistant postmaster at East Stroudsburg. If you will also send a copy of your complaint to us this will keep us posted on areas of poor service.

Maintenance of Pulp & Paper Mill Equipment

The forty-three sections of this book represent the first effort anywhere to publish in one volume comprehensive coverage of the maintenance of most major equipment used by our industry. Each section deals with the problems of a specific type of equipment such as drum barkers, jordans vacuum pumps, etc. The book, therefore, presents a completely different and more concrete approach than our previous publication (still available) "Pulp, Paper and Board Mill Maintenance" where the subject was discussed in the more general terms of: organization, planning, lubrication, and the specialized problems of each operating department.

Principal machinery covered in **"Maintenance of Pulp and Paper Mill Equipment"** includes:

Drum Barkers
Chain Conveyors
Chippers
Chipper Knives
Vibratory Screens
Magazine Grinders
Ring Grinders
Pulpstones
Grinder Motors
Reject Refiners
Kraft Digesters
Black Liquor Evaporators
Precipitators
Lime Kilns
Conveyor Belts
Screw Conveyors
Bleach Plants
Stock Pumps
Disk Refiners
Jordans
Conical Refiners
Centrifugal Pumps
Chemical Pumps
Vacuum Pumps
Centrifugal Screens
Paper Machine Screens
Fourdriniers
Rubber Rolls
Doctors
Paper Machine Drives
Ventilation Systems
Size Presses
Calender Rolls
Supercalenders
Slitters and Winders
Trimmers
Electric Trucks
Air Compressors
V-Belt Drives
Leather and Plastic Belts
Chimneys
Chain Drives

The section covering each item is authored by an expert from a leading manufacturer of that equipment.

LOCKWOOD TRADE JOURNAL CO., INC. ORDER FORM
49 West 45th Street, New York 36, N. Y.

Please ship us / me

☐ MAINTENANCE OF PULP AND PAPER MILL EQUIPMENT ..... copies @ **$7.50** each

☐ Pulp, Paper and Board Maintenance ..... copies @ **$2.50** each

Postage prepaid.

Name .....

Company .....

Street .....**City and State** .....

ADVERTISERS

Acme Steel Company ..... —
Air Reduction Chem. Co. .... —
Air Reduction Sales Co. .... —
Albany Felt Co. .....18C & D
Alginates Industries, Ltd. .... —
Allied Chemical Corp. ..... —
Allimand, Ateliers de Construction ..... —
Allis Chalmers Mfg. Co. ..... —
American Bitumuls & Asphalt Co. ..... —
American Cyanamid Co. Paper Chemical Div. ..... —
Dyes Dept. ..... —
Organic Chem. Div. ..... —
Pigment Div. ..... —
American S.F. Products, Inc.. —
American Viscose Corp. ..... —
Ames, B. C. Company ..... —
Anglo American Clays Corp. .. 64
Anglo-Canadian Pulp & Paper Mills ..... —
Anglo Paper Products Ltd. .. —
Anheuser-Bush, Inc. ..... —
Antara Chemicals, Sales Div. Gen. Analine & Film Corp... —
Apmew, Inc. ..... —
Appleton Wire Works ..... —
Armco Drainage & Metal Prod. Co. ..... —
Armco Steel Corp. ..... —
Arnold Hoffman & Co. ..... —
Asten-Hill Mfg. Co... ..... —
Atlantic Coast Line R. R. ... —
Babcock & Wilcox Co. ..... —
Bahr Brothers Mfg. Co. ..... —
Bailey Meter Co. ..... —
Bauer Bros. Co. ..... 8 & 9
Becco Chem. Div. Food Machy. Corp. .....44 & 45
Beloit-Eastern Corp. ..... —
Beloit Iron Works Co. ..... —
B. I. F. Industries ..... —
Bird Machine Co. 17
Black-Clawson Co. ..... 6 & 7
Black-Clawson International, Ltd. ..... —
Bolton & Sons 3
Brandon Sales, Inc. 12
British Titan Products Co., Ltd. ..... —
Broughton, A. E. & Co. ..... —
Brown Company ..... —
Bruderhaus (Maschinenfabrik Zum) ..... —
Buffalo Forge Co. ..... —
Butterworth, H. W. & Sons Co. ..... —
Cady, E. J. & Co. ..... —
Cadillac Associates Inc. 66
Cameron Machine Co. ..... —
Carthage Machine Co. ..... —
Celgar Ltd. ..... —
Cellulose Sales Co. 42
Chem. Pulp Process ..... —
Chromium Corp. of America .. —
Ciba Company ..... —
Clark-Aiken Company ..... —
Clarkson Company ..... —
Classified Advertising 66
Cleveland Crane & Engrg. .. —
Columbia Pulp Sales, Ltd. .. —
Columbia Southern Chemicals (refer to Pittsburgh Plate Glass Co., Chem. Div.) .... —
Combustion Engrg. Co. ..... —
Corn Products Sales Co. 10A
Crane Company ..... —
Davis, Frank H., Co., Inc. .. —
DeBergue Machine Tools, Ltd. —
Dempster Bros., Inc. ..... —
Deutsche Adka Gesellschaft .. —
DeZurik Corporation ..... —
Diamond Alkali Co. ..... —
Dierks Forests, Inc. ..... —
Directory of the Paper Industry (France) ..... —
Dixon Chem. & Res. Co. ..... —
Dodge Mfg. Co. ..... —
Dorries, O. A. G. ..... —
Dorr-Oliver, Inc. ..... —
Dow Chemical Co. .....20 & 21
Dow Corning Corp. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. ..... —
du Pont, E. I. de Nemours & Co., Dyes & Chem. Dept. ..... —
Electrochemical Dept. ..... —
Pigments Dept. ..... —
Duverre Inc. ..... —
Eaton Manufacturing Co. .... —
Ebasco Services, Inc. ..... —
Egan, Frank W., & Co. ..... —
Electric Mchy. Mfg. Co. ..... —
Elixman Paper Core Co. ..... —
Enjay Chemical Co. ..10D & 10E
Evans, W. P. & Son, Ltd. ... —
Export Supplement Bet. .... —
Fabri Valve Co. of America .. —
Farrel-Birmingham Co. ..... —
Finckh, Herman ..... —
Fitchburg Screen Plate Co. .. —
Food Mchy. & Chem. Sales Dept., Chemicals & Plastics Div. 61
Food Mchy. & Chem. Corp. Chlor-Alkali Div. ..... —
Gardner International Corp. .. —
Garlock, Inc. ..... —
Geigy Chemicals Corp., Geigy Dyestuffs Co. ..... —
General Dyestuffs Co. ..... —
Gibbs-Bower Co. ..... —
Glidden Company ..... —
Goodyear International Corp. ..... —
Goodyear Tire and Rubber Co. —
Gottesman-Central National Org. ..... Front Cover
Goulds Pumps ..... —
Great Eastern Packing & Paper Co. ..... —
Great Lakes Carbon Corp., Dicalite Dept. ..... —
Greening & Sons, Ltd. ..... —
Grinnell Co., The ..... —
Gurley, W. & L. E. 64
Hamblet Machine Co. ..... —
Hardinge Company, Inc. ... 56
Harland Engrg., Ltd. ..... —
Harris-Seybold ..... —
Haveg Corporation ..... —
Hayssen Mfg. Company ..... —
Heimbach, Thomas J. ..... —
Hercules Powder Co. ..... —
Hooker Chemical Co. 63
Huber, J. M. Corp. .....Cover 2
Hudson Sharp Machine Co. .. —
Hungerford & Terry, Inc. ... —
Hunt & Moscrop ..... —
Huyck Felt Company 62
Hyster Company ..... —
Improved Machinery, Inc. 10B
Ingersoll-Rand Co. ..... —
Inglis, John, Co. ..... —
Industriplanering ..... —
International Exposition Co. .. —
Jagenberg U.S.A., Inc. ..... —
Jagenberg Werke ..... —
Jamesbury Corp. ..... —
Jenkins Brothers 10
Johnson, Alvin H., Co. ..... —
Johnson Corp., The ..... —
Jones, E. D., Corp. 53
Kalamazoo Tank & Silo Co. .. —
Kamyr, Inc. ..... —
Karlstads Mekaniska Werkstad —
Kenyon, James & Son ..... —
Kidder Press Co. ..... —
Knox Woolen Co. 65
Koppers Co., Inc. .....42A & B
Krauss-Maffei-Imperial G.m.b.H. ..... —
Lamb-Grays Harbor Co. ..... —
Lamort Fils ..... —
Lankston, Samuel Co. ..... —
La Papeterie ..... —
Laporte Titanium Ltd. ..... —
Leje & Thurne, A. B. ..... —
Lestoil, Inc. ..... —
L'Homargy ..... —
Link-Belt Co. ..... —
Little, Arthur D., Inc. ..... —
Lob, Albert Maschinen and Apparatebau ..... —
Lockwood Greene Engrg. Inc. —
Lodding Engineering Co. .... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —
Main, Charles T., Inc. 62
Manchester Machine Co. ..46 & 47
Marathon—A Division of American Can ..... —
McLean, Ltd. ..... —
Mecke, Klaus, & Co. ..... —
Metron Instrument Co. ..... —
Miller Corp., Harry ..... —
Millspaugh, Ltd. ..... —
Mine and Smelter Supply Co. 52
Minerals & Chem. Philipp Corp. ..... —
Minneapolis-Honeywell ....24 & 25
Mixing Equipment Co. ..... —
Monsanto Chemical Co. ..... —
Montmorency Paper Co. ..... —
Moore & White ..... —
Morden Machine Co. .. Back Cover
Mt. Hope Machinery Co. 23
Mt. Vernon Mills, Inc. ..... —
Multi Metal Wire Cloth Co. —
Murray, D. J., Mfg. Co. 50
Nalco Engineering Co. ..... —
Nash Engineering Co. ....54 & 55
National Aniline Div., Allied Chem. Corp. ..... —
National Starch & Chemical Corp. ..... —
National Tube Div., U. S. Steel Inc. ..... —
Newport News Shipbldg. & Dry Dock Co. 10F
New Jersey Zinc Co. ..... —
Neypric ..... —
Nichols Eng. & Research Corp. 60
Noble & Wood Mch. Co. .... —
Nopco Chemical Co. 57
No. American Mogul Products —
Norton Co. ..... —
Norton Co., Sir James Farmer —
Oakite Products Inc. 43
Olin Mathieson ..... —
Osborne Paper Mill Equip. Co. —
Overly's Inc. ..... —
Paper Conv. Mch. Co. ..... —
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Pennsylvania Indust. Chem. Corp. 51
Penobscot Chemical Fibre Co. —
B. F. Perkins & Son, Inc. ... 10C
Perkins Goodwin Co. ..... —
Pfaudler Permutit Inc. ..... —
Pumpindustri A. B. ..... —
Pioneer Paper Stock Co. .... —
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price & Pierce, Ltd. 65
Puget Sound Pulp & Timber Co. ..... —
Rader Pneumatics 59
Rayonier, Inc. ..... —
RCA Industrial Electron Prod. —
Record Fdy. & Mach. Co. .. 65
Red Ray Mfg. Co. 65
Remington Arms Co. ..... —
Rhoads, J. E., & Sons ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Rockwood Sprinkler Co. ..... —
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Ross, J. J. Co. ..... —
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. .. —
Ross Paper Machinery Co. .. 67
Ruderman Machinery Service.. 69
Rust Engineering Co. 67
Sandoz Chem. Wks. .....18A & B
Sandy Hill Iron & Brass Wks. —
Scapa Dryers ..... —
Seaboard Air Line R. R. Co. —
Shawinigan Resins Corp. ..... —
Sheffield Corp. ..... —
Shuler & Beninghofen ..... —
Signode Steel Strapping Co. .. —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
Smidth, F. L., & Co. ..... —
Smith & Winchester Mfg. Co. —
Solvay Process Div., Allied Chem. Corp. ..... —
Sonoco Products Co. ..... —
Southworth Machine Co. .... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. 62
Staley Mfg. Company ..... —
Starch Products, Ltd. ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Steinen, Wm., Mfg. Co. ..... —
Stone & Webster Eng. Corp. .. —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co., Kraft Div. ..... —
St. Regis Paper Co., Panelyte Div. ..... —
Sturge Ltd., John & E. ..... —
Sunday, George M., Assoc. .. 66
Taylor Instrument Co.'s ..48 & 49
Taylor-Wharton Company .... —
Tennessee Corp. ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur ..... —
Thermal Equip. Corp. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 64
Thompson, John, Co. ..... —
Tidland Machine Co. ..... —
Titanium Pigment Corp. ..Cover 3
Torrington Co. ..... —
Tyer Rubber Corp. ..... —
United Engrg. & Fdy. Co. .... —
Universal Metal Hose Co. .... —
U. S. Steel Corp. ..... —
Valley Iron Works ..... —
Vanderbilt, R. T., Co. ..... —
Vapo Systems Co. ..... —
Virginia Chemicals & Smelting Co. 59
Voith, J. M., G.m.b.H. ..... —
Wagenknecht, A. P., Co. .... —
Waldron-Hartig Div., Midland Ross Corp. 19
Wartsila Koncernen A. B. .... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Weyerhaeuser Co. 64
Williams-Gray Co. ..... —
Wisconsin Wire Works 58
Woodpulp, Inc. ..... —
Wyandotte Chem. Corp. ..... —

While we strive for accuracy in preparing the above index which is purely a service to our readers, we cannot be responsible for errors.

PAPER TRADE JOURNAL

BUSINESS STAFF

Alrick Man — Sales Manager

Francis J. Gordon — Paul E. Thornton

New York 36, N. Y. 49 W. 45th St. Plaza 7-2370
Cable: "Lockmin"

CHICAGO 3, ILL.: H. K. Vinton
79 W. Monroe St. CEntral 6-2784

PITTSBURGH 28, PA.: Edward H. Hall
645 East Shady Drive 343-1920

MIAMI 38, FLA.: Hal Moore
279 N. E. 79th Street. PLaza 8-5516

Rep. by McDonald-Thompson in:

LOS ANGELES 5, CAL.: Fabian Bradbury
3727 W. Sixth St. DUnkirk 7-5391

SAN FRANCISCO, CAL.: Cal Wood
625 Market St. EXbrook 7-5377

DENVER 3, COLO.: Bob Heidersbach
620 Sherman Street. TAbor 5-3325

PORTLAND 1, ORE.: Francis M. Eaton
2035 S.W. 58th Ave. CA 2-5146

DALLAS 19, TEXAS: Parker Harris
2727 Oak Lawn Ave. LAkeside 1-1266

HOUSTON 6, TEXAS: F. Vickrey
Room 214, 3217 Montrose Blvd. JAckson 9-6711

SEATTLE 4, WASH.: H. Abney
1008 Western Ave. MA 3-3766

Frederick B. Grosse, Production Mgr.

New York 36, N. Y. 49 W. 45th St. Plaza 7-2370
Cable "Lockmin"

Foreign Representatives

EUROPE except U.K. & Germany
John Ashcraft
9 Rue Lagrange, Paris, 5e.

GERMANY
Herbert Morgenbesser
Kohlgarten, 3, Hamburg-FU. Phone 59-82-09.

TOKYO, JAPAN
George C. Olcott, Business Manager,
International Media Representatives Ltd.,
Shadan Hoin, 14.2—Chome Marunouchi.

UNITED KINGDOM
John Eckford-Prossor,
Stafford House, Norfolk St., Strand, London, W.C.2
Phone TEmple Bar 7397.

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

Let TITANOX-A-CG
help make sales through the mails

The eagerly awaited catalog can be a star salesman, especially when well known TITANOX titanium dioxide pigment has boosted the brightness and opacity of its pages while keeping weight down. And for outstanding pages that require coated stock there is new TITANOX-A-CG.

TITANOX-A-CG is the coating grade anatase titanium dioxide pigment so well suited to the high solids, high speed coatings applied by all modern coating methods including the trailing blade coater. This pigment is equally suitable to other processes such as size press and calender application.

In addition to high whiteness, brightness and opacity, TITANOX-A-CG readily yields high gloss. This pigment is ideal for the fast, continuous production of paper surfaces of uninterrupted smoothness.

We will be glad to discuss with you the type of TITANOX best suited to solve your white pigmentation problems. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities. In Canada: Canadian Titanium Pigments, Ltd., Montreal.

TITANIUM PIGMENT CORPORATION
SUBSIDIARY OF NATIONAL LEAD COMPANY

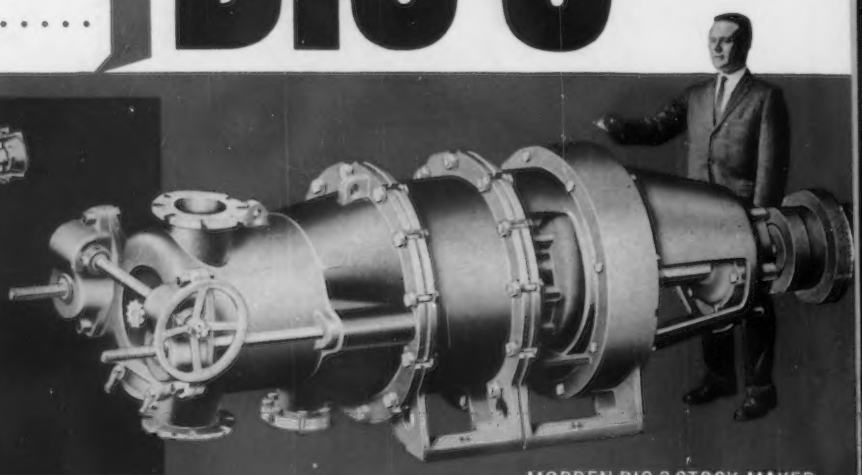
TITANOX

7898

- *Big Capacity*
- *Improved Treatment*
- *Operating Economy with the Morden . . . . .*

BIG 8 REFINER

FIGURE 5. Big 8 Stock-Maker Refiner, illustrating reverse flow, cushioning principle. Stock enters hollow rotor at A, is forced between bars on rotor B and shell C where the opposing internal flow pressures hold a full cushion of stock, permitting heavy bar loading for maximum brushing, combing and fraying of the fibers. Cutting action is at a minimum.



MORDEN BIG 8 STOCK-MAKER
300-400 CONNECTED H. P.

FIGURE 1. Untreated pulp. Freeness, 635 Canadian Standard. Tear factor, 85.

FIGURE 2. Medium treatment by Morden Stock-Maker. Freeness, 300 Canadian Standard. Tear factor, 85.

FIGURE 3. Medium jordaning treatment. Freeness, 275 Canadian Standard. Tear factor, 55.

FIGURE 4. Heavy treatment by the Stock-Maker. Freeness, 75 Canadian Standard. Tear factor, 60.

The perfect refiner is yet to be built. But, the development which comes closest to refining perfection, customers tell us, is the MORDEN BIG 8 REFINER. Here is the BIG MORDEN 300-400 H. P. engine which provides the maximum in stock treatment. . . . Good Mullen • Improved tear retention • Excellent fold and tensile development • Printability specs met with ease through precision stock treatment.

THE SECRET IS MORDEN'S DEVELOPMENT OF THE FIBERS. The incompatibles, Good Mullen and Good Tear Retention at Minimum Freeness Reduction, are made compatible in the MORDEN BIG 8 REFINER through its brushing, combing action, which develops and frays the fibers with minimum cutting. The photomicrographs tell the story. FIGURE 1 shows unbleached sulphite prior to refining. FIGURE 2, the same fibers after medium treatment in the Morden Stock-Maker Refiner. Note the fraying and brushing imparted to each fiber. FIGURE 3, the same fibers treated to about the same level of freeness with a jordan. Notice how the fibers are cut, not frayed. FIGURE 4, the same fibers as Figure 2, except that the MORDEN refining treatment has been carried to much lower freeness. Even so, the tear in Figure 4, with twice as much MORDEN treatment, is better than figure 3 with medium jordaning.

HOW FIBER DEVELOPMENT IS ACHIEVED AND CUTTING MINIMIZED. Morden's unique reverse-flow principle, with opposing internal flow pressures, **provides a constant cushion of stock between the shell and rotor bars,** permitting maximum brushing and fraying, with minimum cutting of the fiber. SEE FIGURE 5. Result: GOOD MULLEN and EXCELLENT TEAR RETENTION at MINIMUM FREENESS DROP, INCREASED MACHINE SPEED & DRYER CAPACITY FOR INCREASED DAILY PRODUCTION.

POWER SAVINGS. Over and over again customers tell us that Morden Stock-Makers provide better stock treatment, yet consume less power . . . **in some cases savings up to 50% are reported.** A 400 H. P. MORDEN BIG 8 uses only 70 to 90 of its connected H. P. for idling load, leaving 310 to 330 H. P. for efficient stock treatment. Compare this efficiency with any other conical refiner, where usually up to 50% of applied energy is consumed for idling load.

LOWER INVESTMENT COST. When all other costs are going up, Morden has improved the design, retained the efficiency but has reduced the cost approximately 20%. Built-in motor is a cost and space-saving option.

LOWER MAINTENANCE COST. Chrome steel fillings are recommended for furnishes in a pH range of 6 or above. Bronze fillings in furnishes with pH 6 and below. Fillings usually give 3 to 5 or more years of trouble-free service. Precision-machined cast fillings require no grinding-in. Down time cut to a minimum. Constant load maintained easily. Superior fillings and fine machine design result in minimum maintenance.

Morderize . . . . .

YOUR STOCK SYSTEM

. . . send for full information on the MORDEN BIG 8 REFINER.

MORDEN MACHINES COMPANY

3420 S. W. MACADAM AVENUE
PORTLAND 1, OREGON

TELEPHONE: CAPITOL 2-9355 • CABLE: "MORDEN"